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शिक्षा एवं प्रशिक्षण का आंचलिक संस्थान, चंडीगढ़

ZONAL INSTITUTE OF EDUCATION AND TRAINING, CHANDIGARH

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STUDY MATERIAL FOR CLASS VI MATHEMATICS

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IMPORTANT CONCEPTS:

- ❖ To arrange given numbers in the ascending order start from the smallest number and go upto the greatest number, eg. 3,4,9,12,20 is the ascending order.
- ❖ To arrange given numbers in the descending order start from greatest and move to the smallest number, eg. 102 ,87,64,45 is the descending order.
- ❖ Indian system of numeration uses ones, tens, hundreds, thousands, lakhs and crores.
- ❖ International system of numeration uses ones, tens thousands, and millions. Commas are used after every 3 digits from the right.
- ❖ Face value of a digit is the value of the digit itself.
- ❖ Place value is the product of face value and value of place occupied by the digit.

SOME ILLUSTRATION/EXAMPLES:

(MCQs)

1. How many mm in 1m:
(a) 10 (b) 100 (c) 1000 (d) 10000

Sol: $1 \text{ m} = 100 \text{ cm} = 100 \times 10 \text{ mm} = 1000 \text{ mm}$. so, option (c) is correct.

2. In 368041 the place value of 8 is:
(a) 8000 (b) 800 (c) 80 (d) 80000

Sol: The place value of 8 = $1000 \times 8 = 8000$. So option (a) is correct.

3. 1 million is equivalent to
(a) 100 thousands (b) 1000 thousands (c) 10 thousands (d) 1 crore

Sol : $1000 \times 1000 = 1000000$. So option (b) is correct.

4. Writ the roman numerals for 59
(a) XLV (b) VLX (c) XVL (d) LIX

Sol : $59 = 50 + 9 = L + IX = LIX$. So option (d) is correct.

CASE STUDY QUESTION

African safari dventure



Kit and Mathew begin their African Safari at the watering hole. They had two days to see all the wild life they could. Their parents and the guide kept them safe.

The first morning 8 elephants come to the waterhole for their morning bath. Soon kit counted 18 zebras coming for water. A dozen baboons wandered in and started making noise and acting silly.

The next day everyone Road into the bush. They paused to look at a lone rhino standing in a clearing. While they were looking, the rhino begin to charge them. kit and Matthew screamed but the guide drove them to safely.

Further on they found a pride of six lions dozing under an acacia tree. Above the lions , 22 monkeys are playing on the tree. Matthew and kit saw a giraffe with baby standing beside a tree. The giraffe stretched to reach its food with its long tongue.

Everyone was tired. They had seen no leoprds, or hyenas, or cheatshs. Lions had not roared, but a rhino had threatened them. what an exciting adventure they had !

Q 1. The approximate number (rounded off to 10) of total animals the children see their first day on safari -

- (a) 30 (b) 45 (c) 50 (d) 40

Q 2. Arrange the number of animals in descending order they see on first day ?

Q 3. Write the total number of animals they see on first day in Roman Number.

Q 4. Arrange the number of animals they see in two days in ascending and descending order ?

ANS.

1. (d) 2. $18 > 12 > 8$ 3. XXXVIII 4. $1 < 2 < 6 < 8 < 12 < 18 < 22$

$22 > 18 > 12 > 8 > 6 > 2 > 1$

SHORT ANSWER TYPE QUESTIONS

- Write the given number in expanded form: 589342
Sol: $589342 = 500000 + 80000 + 9000 + 300 + 40 + 2$
- Write the given number in words 278060:
Sol: Two lakh seventy –eight thousand sixty.
- Express 932543896 in Indian system
Sol: 93,25,43,896.

LONG ANSWER TYPE QUESTIONS

- A truck is loaded with 200 packets of apple. If each box weighs 5kg 350g. Then find the total weight of apples in the truck.

Weight of one packet = 5 kg 850 gm

No. of packets = 200

Total weight of apples = $200 \times (5 \text{ kg } 850 \text{ gm})$

$$= 200 \times (5000 \text{ gm} + 850 \text{ gm})$$

$$= 200 \times 5850 \text{ gm}$$

$$= 1170000 \text{ gm}$$

$$= (1170000 / 1000) \text{ kg} = 1170 \text{ kg}$$

- The town newspaper is published every day . One copy has 12 pages . Every day 11,980 copies are printed. How many total pages are printed every day.

No. of pages in one copy = 12

No. of copies = 11980

Therefore total pages printed every day $12 \times 11980 = 143760$ pages.

QUESTIONS FOR PRACTICE

MCQs

- The greatest 5-digit number using the 3, 1, and 0
(a) 30001 (b) 10003 (c) 31000 (d) 13000 ANS(c)
- The place value of 2 in 91023045 is:
(a) 2000 (b) 20000 (c) 200 (d) 200000 ANS(B)
- Number of symbols used in roman number is:
(a) 9 (b) 8 (c) 7 (d) 10 ANS (C)
- Number of lakhs required to make a million:
(a) 10 (b) 100 (c) 1000 (d) 10000 ANS (A)
- Which is smallest three digit No. which does not change even if digits are written in reverse order:
(a) 110 (b) 101 (c) 330 (d) 909 ANS (B)
- Choose greatest No. among the following:
(a) 28397 (b) 34567 (c) 3303546 (d) 11850 ANS (C)
- Choose smallest No. among the following:
(a) 602031 (b) 620312 (c) 631230 (d) 613203 ANS (A)
- In 3,68,041 place value of 8 is :

- (a) 80 (b) 800 (c) 8000 (d) 80000 ANS (C)
9. Smallest four digit number having three different digit is :
 (a) 1000 (b) 1001 (c) 1002 (d) 2001 ANS (C)
10. The largest number which can formed by digits 4307 without repeating digits :
 (a) 4037 (b) 4703 (c) 7403 (d) 7430 ANS (D)

SHORT ANSWER TYPE QUESTIONS

1. How many mm in 1 cm ANS: 10 mm
2. How many centimeters make kilometer ANS: 1 Lakh cm
3. How many milligrams make one-kilogram ANS: 1000 mg
4. Write in roman numerals for 73 ANS: LXXIII
5. Write place value of 9 in 390345 ANS: 90,000
6. Write the Hindu- Arabic numerals for XLV ANS: 45
7. Write roman numeral for 38 ANS : XXXVIII
8. Write the largest 4 – digit number ANS : 9999
9. What is the successor of 989599 ANS : 989600
10. Find the difference of place value of 5 in 25472 and 19523 ANS : 4500

LONG ANSWER TYPE QUESTIONS

1. A medicine bottle contains 50 ml of a certain medicine. What will be quantity of medicine in 2000 such bottles? . Express the answer in litres ANS : 100 litre
2. A vessel contains 5 litre 750 ml of oil. How many bottles would be required if it is to be sold in a packing of 50 ml only ? ANS : 115 bottles
3. A shopkeeper sold 55029425kg of rice in 2005 and 82435175 kg rice in year 2006. Find the difference in the quantity of rice sold in two years. ANS : 27405750kg
4. A fruit seller sold 5248519kg of apples and 4732440kg of oranges. What is the total weight of fruit sold ? ANS : 9980959kg
5. In an election Ram lal won over his contestant Shyam lal by 24592840 votes. If he got 203242337 votes in all, how many votes would Shyam lal have got?

ANS : 227835177

6. A box of noodles weigh 5 kg 200gm. How many such boxes can be transported in a truck with a maximum capacity of 1500kg ? ANS : 288 boxes

CASE STUDY QUESTIONS

1.

Colony Blocks

In a colony of 100 blocks the flats are numbered 1 to 100, a school van stops at every 6th block while a school bus stops at every 10th block. Hari, Jackline, Sindhu and Robert are 4 friends. Hari lives in 42nd block, Jackline lives in 53rd block, Sindhu lives in 60th block while Robert lives in 80th block.



Q.1 School van stops at _____ and _____ Blocks.

- (a) Hari, Sindhu
- (b) Jackline, Hari
- (c) Sindhu, Robert
- (d) Jackline, Robert

Q.2) Out of 4 friends whose block neither school van stops nor school bus?

.....

Q.3) Name the two friends who can catch the school bus only.

.....

Q.4) Who can catch both school Van and School bus to go to school.

ANS:

- Q.1 option (A)
- Q.2 Jackline
- Q.3 Sindhu, Robert
- Q.4 Sindhu

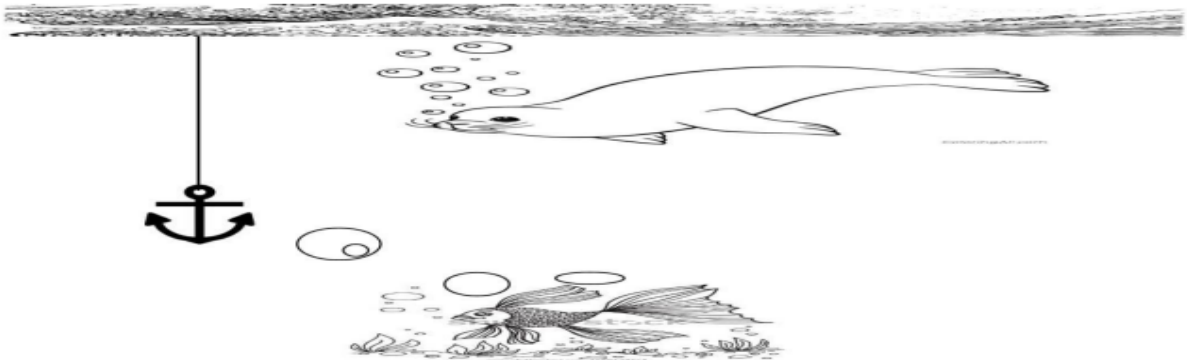
THE SEAL FISH

Seals eat primarily **fish**. They use their whiskers for locating prey in these predominantly turbid waters. ... They can also determine the size and shape of the **fish** from a distance. **Seals** do not have a preference for one specific **fish** species, but they usually

catch **fish** that live close to the sea bottom. A seal swims just as readily on its back as on its belly, standing upright or upside down. The front flippers serve as paddles; the body and hind fins provide the propulsion.

Seals can dive down to depths of hundreds of meters. During the first few minutes, they swim actively downwards, after which they go into a kind of gliding flight while they sink even deeper. Their body is totally adapted to long and deep dives.

A seal is swimming in the ocean 5 feet below sea level. It dives down 12 feet to catch some fish. Then the seal swims 8 feet towards the surface with its catch.



Q1 What is the seal final elevation relative to sea level?

- (a) 9 feet (b) 8 feet (c) 20 feet (d) 15 feet

Q2. Find the position of the fish from sea level ?

Q3. What is the position of the seal fish from sea level ?

Q4 If seal fish swim 10 feet below the sea level then what will be the final elevation of seal fish ?

ANS:

1. (a)
2. 17 feet below the sea
3. 5 feet below the sea
4. 14 feet below sea level

CHAPTER TEST-1

MM.30

1. How many crores makes a billion?
2. Find the greatest number from below number 763298 and 764298
3. On Sunday 6000 people visited a zoo. Among them 2615 were children then how many adult visited zoo?
4. Place commas correctly and write the numerals :
 - a) Seventy three lakh seventy five thousand three hundred seven.
5. Kirti Bookstore sold books worth Rs.2,85,891 in the first week of June and books worth Rs.4,00,768 in the second week of the month. How much was the sale for the two weeks together? In which week was the sale greater and by how much?
6. Find the greatest and the smallest number. 42375, 42367, 42329, 42338
7. Write and solve the expression: Thirteen multiplied by sum of four and eleven. Now reverse the result and add it to earlier result, what you obtain multiply it by 13.
8. X and Y worked as salesperson at a book store. They sold 6283 story books in all. X sold 3324 story books. How many story books were sold by Y?
9. A factory makes 132 machines per day. How many machines will the factory make in March?
10. The population of a town was 9,75,689. In the first year it increased by 4563 and in the second year it decreased by 8976. What was the population of the town at the end of second year?

CHAPTER TEST-2

MM.20

1. Insert commas suitably and write names according to Indian system numeration
88800023
2. Write largest 6 digit number having two different digits.
3. Write all possible 3 digit number by using 9, 0, 5. If repetition of digit is not allowed.
4. Write all possible numbers by using the digits 8, 2, 1, if repetition of digit is not allowed.
5. Arrange following numbers in ascending order.
(a) 5431 (b) 2013 (c) 1045 (d) 8921
6. Write the smallest and the largest number formed by using digit 8, 2, 7. Also find their difference.
7. Arrange No. in ascending order.
(a) 89999 (b) 56039 (c) 38999
8. Write the smallest and largest number of 4 digits, 5 digits and 6 digits.
9. How many thousands make a crore.

A medicine bottle contains 50 ml of certain medicine. What will be quantity of medicine in 2000 such bottles ?

WHOLE NUMBERS

IMPORTANT CONCEPTS :

- ❖ The counting numbers 1,2,3..... are called natural numbers.
- ❖ Natural numbers along with zero are called whole numbers.
- ❖ Smallest natural number is 1 and the smallest whole number is 0.
- ❖ There is no largest natural number or whole number.
- ❖ Every natural number is a whole number but 0 is a whole number which is not a natural number.
- ❖ On a number line a number which occur just right of the number is its successor and a number which lies just to its left is its predecessor.

SOME ILLUSTRATION / EXAMPLES:

MCQs

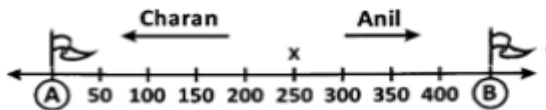
1. Write is the successor of 8549
(a)8548 (b)8550 (c)8594 (d)8549
Sol : $8549 + 1 = 8550$ So option (b) is correct.
2. Write the predecessor of 1644320
(a)1644319 (b)1644321 (c)1644322 (d)1644323
Sol : $1644320 - 1 = 1644319$ So option (a) is correct.
3. $(230 + 9) (401 - 1)$ is equal in value to
(a) 399×230 (b) 399×231 (c) 399×239 (d) 239×400
Sol : $(230 + 9) (401 - 1) = 239 \times 400$ So option (d) is correct.
4. $49 \times 99 + 49$ is equal to
(a) 5000 (b)4900 (c)4901 (d) 4989

Sol : $49(99 + 1) = 49 \times 100 = 4900$ So option (b) is correct.

(CASE STUDY QUESTION)

1.

The following is a number line two boys Charan and Anil starts from X and go with the same speed in opposite direction



Q1. Who will reach the flag post first ?

- a) Charan
- b) Anil
- c) Both reach at the same time
- d) Can not say

Q2. What is the difference between the distance moved by the boys to reach A and B ?

Q3. If after reaching A and B they moved towards X then what is the total distance moved by both of them?

ANS: Q1. (b) Anil Q2. 50 Q3. $2(250 + 200) = 900$, $250 + 200 = 450$

SHORT ANSWER TYPE QUESTION

1. Write the next three natural numbers after 20999.

SOL : 21000, 21001.

2. Write the three whole number occurring just before 20001.

SOL : 20000, 19999

3. Write the numbers between 5910 and 5915.

SOL : 5910, 5911, 5912, 5913, 5914

LONG ANSWER TYPE QUESTION

1. On the occasion of diwali a company purchased 345 pressure cookers for Rs. 258750. Find the price of each pressure cooker.

SOL : $258750 / 345 = 750$

Price of each cooker Rs. 750.

2. Determine the product of largest number of 5 digits and smallest number of 3 digits.

SOL : $99999 \times 100 = 9999900$.

QUESTION FOR PRACTICE

MCQs

1. The successor of the smallest counting number is :
(a) 0 (b) 1 (c) 2 (d) 3 ANS (C)
2. When a number (N) is divided by divisor (D) and quotient is Q, remainder is R, then they are connected by relation :
(a) $N=D \times Q + R$ (b) $D=Q \times N+R$ (c) $Q=N \times D+R$ (d) $N=D \times Q-R$ ANS (a)
3. The whole number which does not have predecessor is :
(a) 0 (b) 1 (c) 2 (d) None of these ANS (a)
4. The successor of the largest 2-digit number is :
(a) 98 (b) 99 (c) 100 (d) 101 ANS (c)
5. When any counting number is multiplied by zero, the product is :
(a) The counting number itself (b) 1 (c) 0 (d) None of these ANS (c)
6. Which of following will not represent zero :
(a) $1 + 0$ (b) 0×0 (c) $0/2$ (d) $2 / 0$ ANS (a)
7. The quotient of $61 / 0$ is :
(a) 0 (b) 61 (c) Not defined (d) 1 ANS (c)
8. A number when divided by 4 gives the quotient 13 and remainder 2. The number is :
(a) 19 (b) 30 (c) 54 (d) 78 ANS (c)
9. The identity element for addition of whole number is :
(a) 1 (b) 0 (c) 2 (d) 10 ANS (b)
10. The most convenient way to solve $5 \times 263 \times 20$ is :
(a) $(5 \times 263) \times 20$ (b) $5 \times (263 \times 20)$ (c) $(5 \times 20) \times 263$ (d) $5 \times 263 \times 20$ ANS (c)

SHORT ANSWER TYPE QUESTION

1. Find the total production of city which has 4255420 men, 5732316 women and 4803630 children.
ANS: 14791366
2. What should be added to 318555 to obtain 600000. ANS : 281445
3. Write the successor of 3540802. ANS : 3540803
4. Write the predecessor of 100000. ANS : 99999
5. Find: $16 + 12 + 4$ ANS : 32
6. A cloth mill produced 5230516 m cloth in the year 2004; 8102550 m cloth in the year 2005 and 3692160 m cloth in 2006. How much cloth was produced in the three years.
ANS : 17025226
7. Find: $625 \times 3759 \times 8$ ANS : 18795000
8. Using distributive property find 17×23 ANS : 391
9. Find the product using suitable property 738×103 ANS : 76014
10. Using the properties of whole number find the following property of $843 \times 4 \times 25$ ANS : 84,300

LONG ANSWER TYPE QUESTION

1. Find the difference between the largest 5 digit number and the largest 4 digit number.
ANS : 90000
2. Shanti lal received Rs.8156420 after selling a house. He gave Rs. 2050000 each to his two sons. He also purchased a car for Rs. 652800. The rest he gave to his wife. How much money did the wife received ?
ANS : 5453620
3. A taxi driver filled his car petrol tank with 40 litres of petrol on Monday. The next day , he filled the tank with 50 litres of petrol. If the petrol costs Rs. 44 per litre, how much did he spend in all on petrol.
ANS : Rs 3960
4. A vendor supplies 32 litres of milk to a hotel in the morning and 68 litres of milk in the evening. If the milk costs Rs 15 per litre, how much money is due to the vendor per day?
ANS : Rs 1500
5. Simplify : $126 \times 55 + 126 \times 45$
ANS : 12600
6. The school canteen charges Rs. 20 for lunch and Rs. 4 for milk for each day. How much money do you spend in 5 days on these things ?ANS : Rs. 120

CASE STUDY QUESTIONS

AMUSEMENT PARK

On 21st October sonu visited an amusement park with his family members, 5 adults and 4 children. There is a full ticket for adults and half ticket for children. On 22nd October his friend Deepu visited an amusement park with his family. They buy 11 tickets. The entrance fee for one ticket is Rs 100.

- Q1. Find the number of tickets purchased by sonu's family ?
- Q2. How much amount is collected from these two families in these two days?
- Q3. Which property of whole numbers can be used to find the amount collected in Q2 ?
- a) Associative property
 - b) Distributive property
 - c) Commutative property
 - d) None of these

Answers:

1. $5+2=7$ 2. $100(11+7)=1800$ Rs, $100(5+4+11)=2000$ Rs 3. Distributive Property

CASE STUDY-2

BASKETBALL COURT

Principal of a school wishes to beautify the basketball court by putting tiles on the floor. Tiles are available in various shapes and sizes i.e. rectangular, square etc. The tiles that are to be fixed are square in shape. The court measures 24m 13 cm by 15m 77cm.

NOTE : The side of the tile should be a natural number



Q 1. What will be the maximum side of the square tiles that can be fixed in the court ?

Q 2. Find the number of tiles needed to cover the court .

Q 3. The H.C.F. of two consecutive even numbers is a) 2 b) 3 c) 5 d) Not unique value

Q 4. H.C.F. of two co-prime numbers is _____ .

Answers:

Q1 : 24m 13 cm = 2413 cm and 15m 77 cm = 1577cm , HCF of 2413 and 1577 is 19 so the side of the tile will be 19 cm .

Q2 : $2413 * 1577 / 19 * 19 = 10541$ Tiles Q3 : 2 Q4 : 1

CHAPTER TEST-1 MM.20

1. Write the predecessor and successor of (a) 1997 (b) 12000
2. Find $8 \times 1769 \times 25$.
3. Find 12×35 using distributivity.
4. What is the difference between the largest number of 5 digits and the smallest 6 digit?
5. The product of two whole numbers is zero. What do you conclude?
6. Find $7 + 18 + 13$.
7. Simplify $126 \times 55 + 126 \times 45$.
8. Find using distributive property.
(a) 5437×10001 (b) 824×25
9. A taxi driver filled his car petrol tank with 40 litre of petrol on Monday. The next day he filled the tank with 50 litres of petrol. If the petrol costs ,44 per litre, how much did he spend in all on petrol?
10. A vendor supplies 32 litres of milk' to a hotel in the morning and 68 litres of milk in the evening. If the milk costs ,15 per litre, how much money is due to the vendor per day?

CHAPTER TEST-2MM.30

1. 320 km distance is to be covered partially by bus and partially by train. Bus covers 180 km distance with a speed of 40 km/h and the rest of the distance is covered by the train at a speed of 70 km/h. Find the time taken by a passenger to cover the whole distance.
2. Solve the following and establish a pattern:
(a) 84×9 (b) 84×99
3. Ramesh buys 10 containers of juice from one shop and 18 containers of the same juice from another shop. If the capacity of each container is same and the cost of each of the container is ₹150, find the total money spend by Ramesh
4. Write 10 such numbers which can be shown only as line
5. Find the product of the greatest 3-digit number and the greatest 2-digit number.
6. A dealer purchased 124 LED sets. If the cost of one set is ₹38,540, determine their total cost.
7. Represent the following on number line:
(a) $3 + 4$ (b) $6 - 2$
8. Using the properties of whole numbers, find the value of the following in suitable way:
(a) $945 \times 4 \times 25$ (b) $40 \times 328 \times 25$
9. Using the properties, find the values of each of the following:
(a) 736×102 (b) $8165 \times 169 - 8165 \times 69$
10. Write the predecessor of the smallest 4-digit number.

PLAYING WITH NUMBERS

Important Concepts/ Result:

Factors and Multiples:

- (i) A factor of a number is an exact divisor of that number.
- (ii) 1 is a factor of every number.
- (iii) every number is a factor of itself.
- (iv) every factor of a number is an exact divisor of that number.
- (v) every factor is less than or equal to the given number.
- (vi) number of factors of a given number are finite.
- (vii) every multiple of a number is greater than or equal to that number.
- (viii) the number of multiples of a given number is infinite.
- (ix) every number is a multiple of itself.

Perfect Number:-A number for which sum of all its factors is equal to twice the number is called a perfect number.

Prime and Composite Numbers:-

- (i) The numbers other than 1 whose only factors are 1 and the number itself are called Prime numbers.
- (ii) Numbers having more than two factors are called Composite numbers.
- (iii) 1 is neither a prime nor a composite number.
- (iv) 2 is the smallest prime number which is even.
- (v) every prime number except 2 is odd.

Co-prime Numbers:- Two numbers having only 1 as a common factor are called co-prime numbers.

Twin Prime Numbers:- Two prime numbers whose difference is 2 are called twin primes.

Tests for Divisibility of Numbers:-

- (i) Divisibility by 2 :- a number is divisible by 2 if it has any of the digits 0, 2, 4, 6 or 8 in its ones place.
- (ii) Divisibility by 3 :- if the sum of the digits is a multiple of 3, then the number is divisible by 3.
- (iii) Divisibility by 4 :- a number with 3 or more digits is divisible by 4 if the number formed by its last two digits (i.e. ones and tens) is divisible by 4.
- (iv) Divisibility by 5 :- a number which has either 0 or 5 in its ones place is divisible by 5.
- (v) Divisibility by 6 :- if a number is divisible by 2 and 3 both then it is divisible by 6 also.
- (vi) Divisibility by 8 :- a number with 4 or more digits is divisible by 8, if the number formed by the last three digits is divisible by 8.
- (vii) Divisibility by 9 :- if the sum of the digits of a number is divisible by 9, then the number itself is divisible by 9.
- (viii) Divisibility by 10 :- if a number has 0 in the ones place then it is divisible by 10.
- (ix) Divisibility by 11 :- if the difference between the sum of the digits at odd places (from the right) and the sum of the digits at even places (from the right) of the number is either 0 or divisible by 11, then the number is divisible by 11.

Highest Common Factor:- The Highest Common Factor (HCF) of two or more given numbers is the highest (or greatest) of their common factors. It is also known as Greatest Common Divisor (GCD).

Lowest Common Multiple:- The Lowest Common Multiple (LCM) of two or more given numbers is the lowest (or smallest or least) of their common multiples.



II. Some illustrations/Examples (with solution) .

1	<p>Which of the following is not a prime number?</p> <p>(a) 1 (b) 2 (c) 3 (d) 5</p> <p>Ans 1</p>
2	<p>Which of the following is a composite number?</p> <p>(a) 2 (b) 3 (c) 4 (d) 5</p> <p>Ans 4</p>
3	<p>Which of the following is a factor of 6?</p> <p>(a) 6 (b) 9 (c) 12 (d) 15</p> <p>Ans 6</p>
4	<p>Which of the following is a multiple of 8?</p> <p>(a) 2 (b) 4 (c) 6 (d) 8</p> <p>Ans 8</p>
5	<p>Case based study question:</p> <div data-bbox="614 1108 1061 1377" data-label="Image"></div> <p>Two tankers contain 850 litres and 680 litres of kerosene oil respectively. Find the maximum capacity of a container which can measure the kerosene oil of both the tankers when used an exact number of times.</p> <p>Solution : The required container has to measure both the tankers in a way that the count is an exact number of times.</p> <p>So its capacity must be an exact divisor of the capacities of both the tankers. Moreover, this capacity should be maximum. Thus, the maximum capacity of such a container will be the HCF of 850 and 680.</p> <p>Now $850 = 2 \times 5 \times 5 \times 17$</p> <p>and $680 = 2 \times 2 \times 2 \times 5 \times 17$</p> <p>The common factors of 850 and 680 are 2, 5 and 17.</p>

	<p>Thus, the HCF of 850 and 680 is $2 \times 5 \times 17 = 170$.</p> <p>Therefore, maximum capacity of the required container is 170 litres.</p> <p>It will fill the first container in 5 and the second in 4 refills.</p>
6	<p>Write all the factors of 24.</p> <p>Ans: All factors of 24 are 1,2,3,4,6,8,12,24.</p>
7	<p>Find all the multiples of 9 up to 100.</p> <p>Ans: 9,18,27,36,45,54,63,72,81,90,99</p>
8	<p>Write all the prime numbers less than 15.</p> <p>Ans: By observing the Sieve Method, we can easily write the required prime numbers as 2, 3, 5, 7, 11 and 13.</p>
9	<p>: Find the LCM of 40, 48 and 45.</p> <p>Solution : The prime factorisations of 40, 48 and 45 are;</p> $40 = 2 \times 2 \times 2 \times 5$ $48 = 2 \times 2 \times 2 \times 2 \times 3$ $45 = 3 \times 3 \times 5$ <p>The prime factor 2 appears maximum number of four times in the prime Factorisation of 48,</p> <p>the prime factor 3 occurs maximum number of two times in the prime factorization of 45, The prime factor 5 appears one time in the prime factorisations of 40 and 45, we take it only once.</p> <p>Therefore, required LCM = $(2 \times 2 \times 2 \times 2) \times (3 \times 3) \times 5 = 720$</p>
10	<p>Find the least number which when divided by 12, 16, 24 and 36 leaves a remainder 7 in each case.</p> <p>We first find the LCM of 12, 16, 24 and 36 as follows :</p> <p>Thus, LCM = $2 \times 2 \times 2 \times 2 \times 3 \times 3 = 144$</p> <p>144 is the least number which when divided by the given numbers will leave remainder 0 in each case. But we need the least number that leaves remainder 7 in each case. Therefore, the required number is 7 more than 144. The required least number = $144 + 7 = 151$</p>

III. Questions for Practice: Number of questions should be as mentioned in the table:

1	Which of the following is a prime number? (a) 1 (b) 2 (c) 4 (d) 6
2	Which of the following is a composite number? (a) 1 (b) 2 (c) 3 (d) 4
3	A number which has only two factors is called a (a) prime number (b) odd number (c) even number (d) composite number
4	HCF of two co-prime numbers is (a) 1 (b) 2 (c) 3 (d) 4
5	The greatest prime number less than 10 is (a) 3 (b) 5 (c) 7 (d) 9
6	A number which has more than two factors is called a (a) prime number (b) odd number (c) composite number (d) even number
7	Using divisibility tests, determine the numbers 14560 is not divisible by (a) 2 (b) 3 (c) 4 (d) 5
8	In which of the following expressions, prime factorisation has been done? (a) $24 = 2 \times 3 \times 4$ (b) $56 = 7 \times 2 \times 2 \times 2$ (c) $70 = 10 \times 7$ (d) $54 = 2 \times 3 \times 9$
9	A number is divisible by both 5 and 12. By which other number will that number be always divisible? (a) 50 (b) 60 (c) 70 (d) 80
10	Smallest perfect number is (a) 2 (b) 4 (c) 6 (d) 8
SHORT ANSWER QUESTIONS	
11	Write the greatest 2-digit number and express it in terms of its prime factors.
12	Find the prime factorisation of 980.
13	Find the common factors of 20 and 28.

14	Write all the numbers less than 100 which are common multiples of 3 and 4.
15	Using divisibility tests, determine which of the following numbers are divisible by 4; by 8: (a) 572 (b) 726352
16	Using divisibility tests, determine which of following numbers are divisible by 6: (a) 297144 (b) 1258
17	Using divisibility tests, determine which of the following numbers are divisible by 11: (a) 5445 (b) 10824
18	Find the HCF of the following numbers 18, 48
19	Find the LCM of 12 and 18.
20	Write three pairs of prime numbers whose difference is 2.
LONG ANSWER QUESTIONS	
21	Write five pairs of prime numbers less than 20 whose sum is divisible by 5.
22	Write down separately the prime and composite numbers less than 20.
23	Three tankers contain 403 litres, 434 litres and 465 litres of diesel respectively. Find the maximum capacity of a container that can measure the diesel of the three containers exact number of times.
24	Three boys step off together from the same spot. Their steps measure 63 cm, 70 cm and 77 cm respectively. What is the minimum distance each should cover so that all can cover the distance in complete steps?
25	Determine the greatest 3-digit number exactly divisible by 8, 10 and 12.
26	Find the least number which when divided by 6, 15 and 18 leave remainder 5 in each case.
27	<p>Case based study question:</p> <p>In a morning walk, three persons step off together. Their steps measure 80 cm, 85 cm and 90 cm respectively. What is the minimum distance each should walk so that all can cover the same distance in complete steps?</p> 
28	<p>Case based study question:</p> <p>The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds respectively. If they change simultaneously at 7 a.m., at what time will they change simultaneously again?</p> 

IV. ANSWERS :

Q.N.	ANS	Q.N.	ANS
1	b	6	c
2	d	7	b
3	a	8	b
4	a	9	b
5	c	10	c

Q. Nos.	Ans.	Q. Nos.	Ans.
11	99, $99=3 \times 3 \times 11$	21	2,3; 2,13; 3,17; 7,13; 11,19
12	$980=2 \times 2 \times 5 \times 7 \times 7$	22	Prime numbers: 2,3,5,7,11,13,17,19 Composite Numbers: 4,6,8,9,10,12,14,15,16,18
13	1,2,4	23	31 litres
14	12,24,36,48,60,72,84,96	24	6930 cm
15	Divisible by 4: (a), (b) Divisible by 8: (b)	25	960
16	(a)	26	95
17	(a), (b)	27	12240
18	6	28	7 minutes 12 seconds past 7 am
19	36		
20	3,5; 5,7; 11,13		

Chapter Test-1 (20 marks)

S.Nos.	Questions.	Marks
1	Write all the factors of the number 18.	2
2	Write first five multiples of 8.	2
3	Using divisibility tests, determine which of the following numbers are divisible by 4; by 8:(a) 572 (b) 726352.	2
4	Write all the prime numbers less than 25.	2

5	What is the sum of any two (a) Odd numbers? (b) Even numbers?	2
6	The numbers 13 and 31 are prime numbers. Both these numbers have same digits 1 and 3. Find such pairs of prime numbers upto 100.	2
7	What is the greatest prime number between 1 and 100?	2
8	Write five pairs of prime numbers less than 30 whose sum is divisible by 5.	2
9	Find the common factors of 75, 60 and 210	2
10	Write all the numbers less than 100 which are common multiples of 3 and 4.	2

Chapter Test-2 (30marks)

S.Nos.	Questions.	Marks
1	A number is divisible by 12. By what other numbers will that number be divisible?	2
2	Find the prime Factorisation of 720.	2
3	Which factors are not included in the prime factorisation of a composite number?	2
4	Find the HCF of the numbers 24 and 36.	2
5	Find the LCM of 40, 48 and 45.	2
6	Using divisibility tests, determine whether the numbers 297144 is divisible by 6.	2
7	Determine the smallest 3-digit number which is exactly divisible by 6, 8 and 12.	3
8	Determine the greatest 3-digit number exactly divisible by 8, 10 and 12.	3
9	The length, breadth and height of a room are 825 cm, 675 cm and 450 cm respectively. Find the longest tape which can measure the three dimensions of the room exactly	3
10	Find the common multiples of 3, 6 and 9.	3
11	Write seven consecutive composite numbers less than 100 so that there is no prime number between them.	3
12	Find all the prime factors of 1729 and arrange them in ascending order. Now state the relation, if any; between two consecutive prime factors.	3

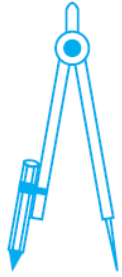
BASIC GEOMETRICAL IDEAS

I. Important Concepts/ Result

Point: A point determines a location.

Points are denoted by capital letter. Point P, Point Q etc

Models for point :



The tip of a compass



The sharpened end of a pencil

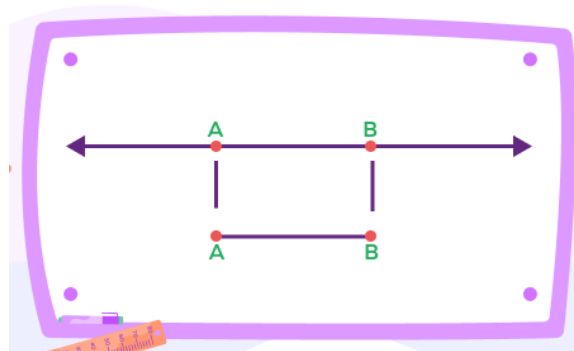


The pointed end of a needle.

• A Line Segment

In geometry, a line segment is a part of a straight line that is bounded by two distinct end points, and contains every point on the line that is between its end points.

- Here AB is a line segment
- Length of line segment can be measured
- It is denoted by two capital letters,



• A Line

In geometry, a line is a straight one-dimensional figure that does not have a thickness, and it extends endlessly in both directions.

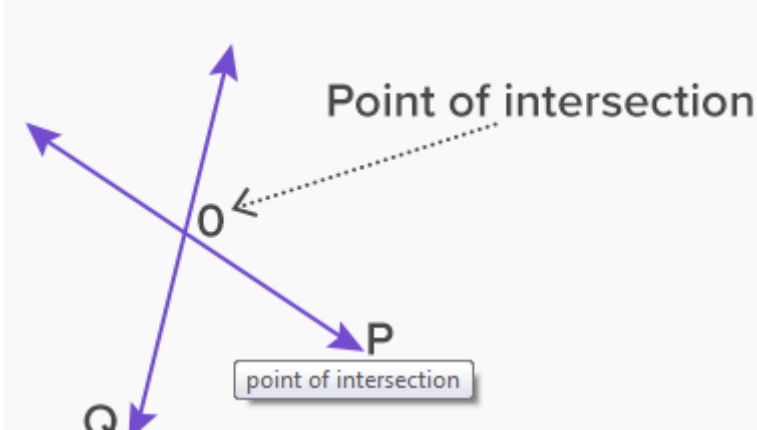


- It does not have end points
- It is extended infinitely in both directions
- The length of a line cannot be measured.
- If you extend line segment in both directions endlessly you obtain a line
- Line is denoted by a small letter or two capital letters.

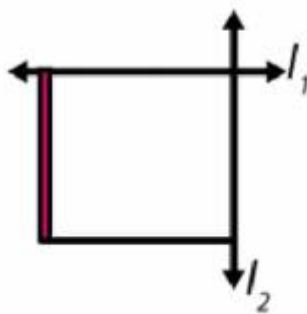
- Intersecting Lines :**

When two or more lines cross each other in a plane, they are called intersecting lines. The intersecting lines share a common point, which exists on all the intersecting lines, and is called the point of intersection.

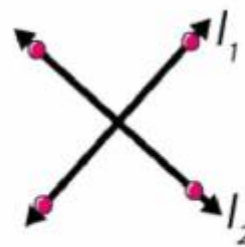
Here, lines P and Q intersect at point O, which is the point of intersection.



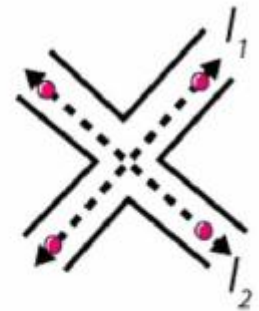
Examples of intersecting lines:



Two adjacent edges of your notepad



The letter X of the english alphabet



Crossing-roads

- Parallel lines :**

Lines like these which do not meet are said to be parallel; and are called parallel lines.

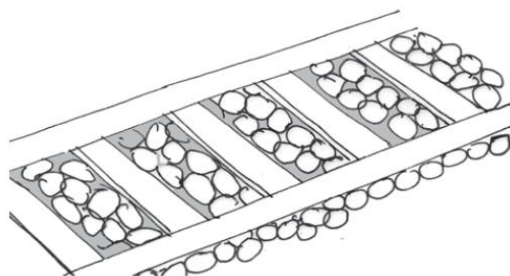
Examples Parallel lines:



The opposite edges of ruler (scale)



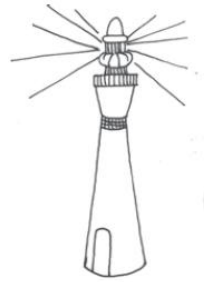
The cross-bars of this window



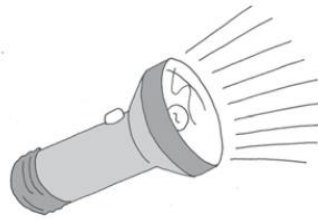
Rail lines

- **Ray** :A ray is a portion of a line. It starts at one point (called starting point) and goes endlessly in a direction.

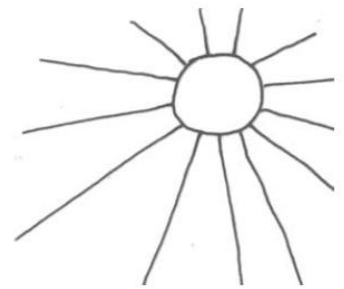
Examples of Ray:



Beam of light from a light house



Ray of light from a torch

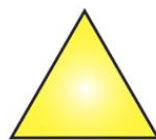


Sun rays

- **Curves:** You can draw some of these drawings without lifting the pencil from the paper and without the use of a ruler. These are all curves
- **Polygons**

A figure is a polygon if it is a simple closed figure made up entirely of line segments.

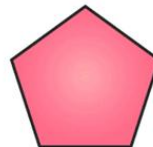
TYPES OF POLYGONS



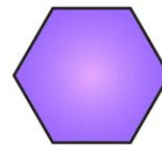
Triangle



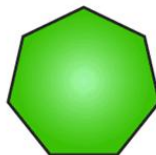
Quadrilateral



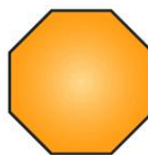
Pentagon



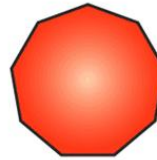
Hexagon



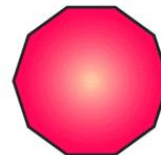
Heptagon



Octagon



Nonagon

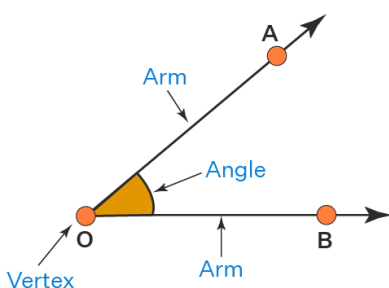


Decagon

- **Angles**

An angle is made up of two rays starting from a common end point. The two rays forming the angle are called the **arms** or sides of the angle. The common end point is the **vertex** of the angle.

Parts of an Angle



New information

The word “angle” is derived from the Latin word “angulus”, which means “corner”.

Note: Angle is denoted using one capital letter or three capital letter.

II. Some illustrations/Examples (with solution) preferably of different types.

i) MCQs : 4

Question 1.

Least number of line segments required to make a polygon is

- (a) 1(b) 2(c) 3(d) 4

Answer: (c) 3

Question 2.

How many lines can be drawn through given two points?

- (a) Only one(b) 2(c) 4(d) Countless

Answer: (a) Only one

Question 3.

How many vertices are there in a triangle?

- (a) 1(b) 2(c) 3(c) 4

Answer: (c) 3

Question 4.

Find 'False' statement.

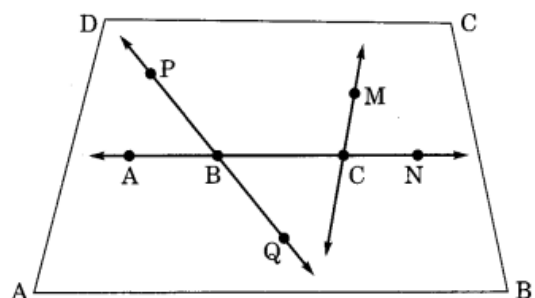
- (a) Two lines intersect in a point(b) The line segment has two end points.
(c) The ray has one initial point.(d) Polygon is a open figure made of line segments only.

Answer: (d) Polygon is a open figure made of line segments only.

ii) Case based study: 1

Using the given figure, name the following:

- (a) Line containing point M.
(b) Line passing through four points.
(c) Line passing through three points.



(d) Two pairs of intersecting lines.

Solution:

(a) MC is the line containing the point M.(b) AN is the line passing through four points A, B, C and N.

(c) PQ is the line passing through three points P, B and Q.(d) Pairs for intersecting lines are

(i) AN and PQ(ii) AN and MC

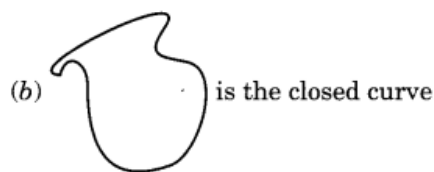
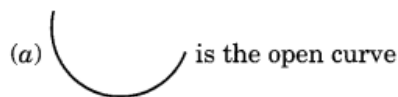
iii) Short answer type question:

Question 1.

Draw a rough sketch of:

(a) open curve(b) closed curve

Solution:



Question 2.

Give two examples of line segments and ray from day to day life.

Question 3

Give four examples of intersecting lines from day to day life.

iv) Long answer type questions: 2

Question 1

Explain the following terms: Line segment, Line, Intersecting lines, Parallel lines

Solution:

Line segment: A straight line drawn from any point to any other point is called as line segment.

Line: Line is a straight path of points that goes on forever in two directions. It has infinite length, but no breadth and height.

Intersecting lines: Intersecting lines are lines that pass through the same point.

Parallel lines: Parallel lines are never cross and always stay the same distance apart.

Question 2

In the given figure, l, m and n are three parallel lines, x and y intersect these lines.

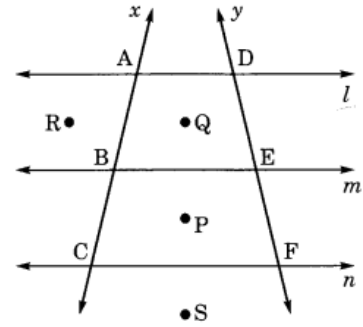
(i) Name the points lying on the line x .

(ii) Name the points lying on the line y .

(iii) Name the points inside the quadrilateral $ABED$.

(iv) Name the points outside the quadrilaterals $ABED$ and $BCFE$.

(v) Name the lines passing through three points.



Solution:

(i) A, B and C lie on the line x . (ii) D, E and F lie on the line y .

(iii) Q is the point inside quadrilateral $ABED$

(iv) Points R and S are outside the quadrilaterals $ABED$ and $BCFE$.

(v) Lines x and y pass through the three points A, B, C and D, E, F respectively.

III .Questions for Practice:

i) MCQs :

Question 1.

Least number of line segments required to make a quadrilateral is

- (a) 1 (b) 2 (c) 3 (d) 4

Question 2.

How many lines can be drawn through a given point?

- (a) Only one (b) 2 (c) 4 (d) Countless

Question 3.

How many vertices are there in a triangle?

- (a) 1 (b) 2 (c) 3 (d) 4

Question 4.

Which of the following has no end points?

- (a) Line (b) Ray (c) Line-segment (d) None of these

Question 5.

The number of arms a ray has

- (A) 1 (B) 0(C) 2 (D) 4

Question 6

If the sum of two angles is greater than 180° , then which of the following is not possible for the two angles?

- A) One obtuse angle and one acute angle(B) One reflex angle and one acute angle
(C) Two obtuse angles(D) Two right angles.

Question 7

The number of right angles in a straight angle is

- (A) 1 (B) 2(C) 3 (D) 4

Question 8

Find out the incorrect statement, if any, in the following: An angle is formed when we have

- (a) two rays with a common end-point(b) two line segments with a common end-point
(c) a ray and a line segment with two common end-point(d) none

Question 9

Which is a mode of perpendicular lines?

- (A) letter A (B) letter Z(C) letter O (D) letter L

Question 10

Railway line is an example of

- (A) intersecting lines (B) straight lines(C) parallel lines (D) none

ii) Short answer type question

State whether the statements given in questions 1 to 5 are true (T) or false (F):

1. A horizontal line and a vertical line always intersect at right angles.
2. Ray is a polygon
3. Two parallel lines meet each other at t point.
4. A ray is a portion of a line.
5. Triangle is a closed curve.

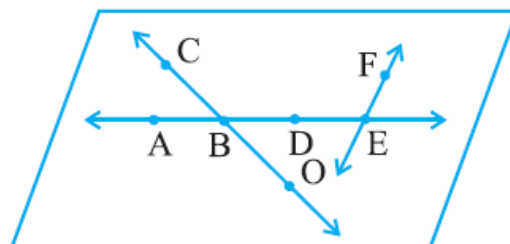
Fill in the blanks from questions 6 to 10

- i. An angle greater than 180° and less than a complete angle is called _____.
- ii. An angle greater than 90° and less than a 180° angle is called _____.
- iii. An angle is made up of two rays starting from a common end point.
- iv. The two rays forming the angle are called the _____ of the angle.
- v. A line has _____ end points

iii) Long answer type questions

1. Use the figure to name :

- (a) Line containing point F.
(b) Line passing through B.



(c) Line on which D lies

(d) Two pairs of intersecting lines.

2. Draw three models for intersecting lines

3. Draw three polygons having sides 4, 5 and 6 sides.

4. Draw rough diagrams of two angles such that they have

(a) One point in common.(b) Two points in common.

(c) Three points in common.(d) Four points in common.

5. Draw a rough sketch of a quadrilateral KLMN. State,

(a) two pairs of opposite sides,(b) two pairs of opposite angles,

(c) two pairs of adjacent sides, (d) two pairs of adjacent angles.

6. Illustrate, if possible, each one of the following with a rough diagram: (a) A closed curve that is not a polygon. (b) An open curve made up entirely of line segments. (c) A polygon with two sides.

CLASS TEST-1 M.M. : 20

Multiple Choice Questions (Q 1 to Q 5)

1 × 5 = 5

- How many lines pass through one given point?
a. 1 b. 2 c. countless d. none
- Which of the following is a model of intersecting lines ?
a. Letter C b. letter X c. letter O d. none
- Which of the following has to end points?
a. line b. triangle c. line segment d. none
- The example of intersecting lines
a. X c. O
b. C d. none
- Pentagon has
a. 3 sides b. 4 sides c. 5 sides d. 6 sides

Say True or False (Q 6 to Q 10)

1 × 5 = 5

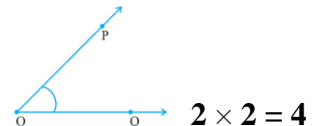
- A point indicates a definite position.
- A line segment is a part of a plane.
- Two lines in a plane always intersect in a point.
- Line has two end points.
- A ray has two arms.

Answer in one word or sentence (Q 11 to Q 14)

1 × 4 = 4

- Can we draw a polygon using two line segments? Say Yes or No
- What is polygon?
- How many initial points does a ray has ?
- Name the two rays that form an angle?

Two marks Questions



2 × 2 = 4

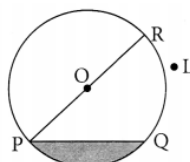
- Name the vertex and arms of $\angle PQR$ in the figure.
- Give two real examples of ray and line segment
- Write two difference between line and line segment

CLASS TEST-2 M.M.: 30
BASIC GEOMETRICAL IDEAS

Multiple Choice Questions (Q 1 to Q 6)

6 × 1 = 6

- Which of the following has one end point?
(a) Line
(b) Ray
(c) Line-segment
(d) None of these
- In given fig. PQ is



- (a) line segment
 - (b) ray
 - (c) angle
 - (d) none
3. Cross –roads is an example of
- (a) Parallel lines (c) intersecting lines
 - (b) Straight lines (d) none
4. How many points does a line have?
- a. 1 b. 2 c. countless d. none
5. Two intersecting lines have
- a. 1 point common c 2point common
 - b. No point in common d. none
6. A polygon is a closed figure made of
- a. line segment b. line c. ray d. none

Say True or False (Q 7 to Q 12)

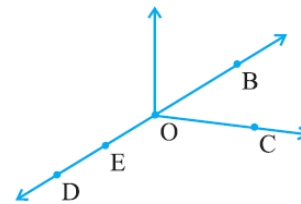
$6 \times 1 = 6$

- 7. Two intersecting lines have two points in common.
- 8. We can count the number of points on the line
- 9. One can draw polygon using two line segments.
- 10. An angle is made up of two rays with common initial point.
- 11. Hexagon is a polygon of seven sides.
- 12. Sun rays are example of ray

Two marks Questions (Q 13 to Q 17)

$5 \times 2 = 10$

13. Use the figure to name :
- (a) Five points (b) A line (c) Four rays
 - (d) Five line segments



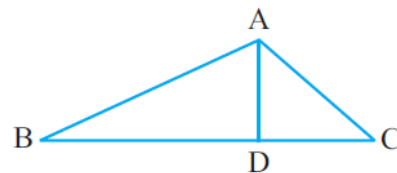
- 14. Give two examples of parallel lines and intersecting
- 15. Draw rough diagrams to illustrate the following :
 - (a) Open curve (b) Closed curve.
- 16. Draw a rough sketch of $\angle ABC$. Mark a point P in its interior and a point Q in its exterior.
- 17. Draw parallel lines and write an example of parallel lines.

lines.

Four marks Questions (Q 18 to Q 19)

$2 \times 4 = 8$

- (a) Name the vertices in the figure.
 - (b) Write the names of seven angles.
 - (c) Write the names of six line segments.
19. Draw rough diagrams of two angles such that they have
- (a) One point in common. (b) Two points in common.
 - (c) Three points in common. (d) One ray in common.



UNDERSTANDING ELEMENTARY SHAPES

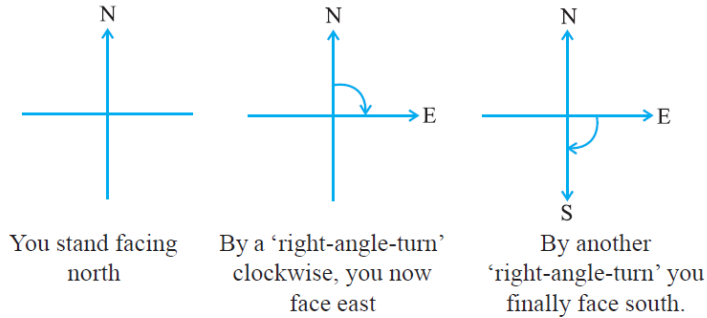
I. Important Concepts/ Result

* Measuring Line Segments

- (i) Comparison by observation
- (ii) Comparison by Tracing
- (iii) Comparison using Ruler and a Divider

• Angles – ‘Right’ and ‘Straight’

You have turned through a **right angle**.



The turn from north to east is by a **right angle**.

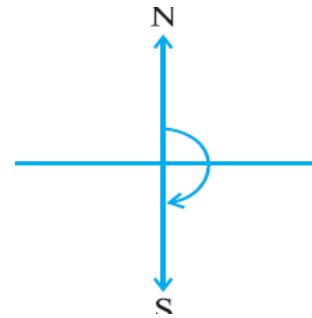
The turn from north to south is by two right angles; it

is called a **straight angle**. (NS is a straight line!)

• Angles – ‘Acute’, ‘Obtuse’ and ‘Reflex’

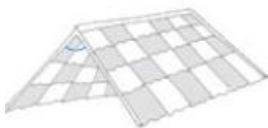
An angle smaller than a right angle is called an acute angle.

angles.



These **acute**

Examples of Acute angle



Roof top



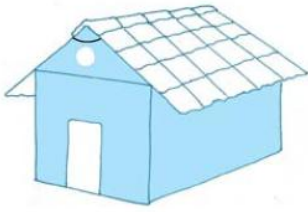
Sea-saw



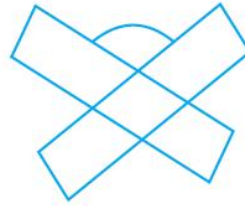
Opening book

If an angle is larger than a right angle, but less than a straight angle, it is called an **obtuse angle**. These are obtuse angles.

Examples of Obtuse angle



House



Book reading desk

• **Measuring Angles**

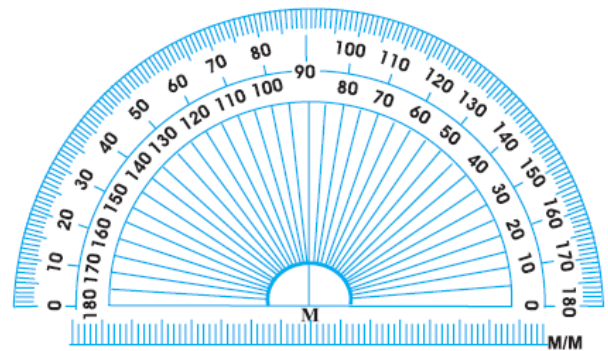
The measure of angle

We call our measure, '**degree measure**'. One complete revolution is divided into 360 equal parts. Each part is a **degree**. We write 360° to say 'three hundred sixty degrees'.

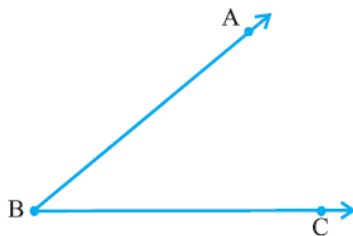
The Protractor

The curved edge is divided into 180 equal parts.

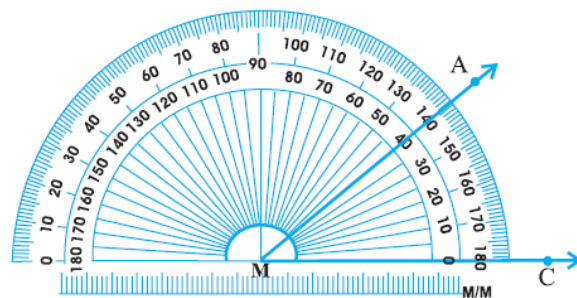
Each part is equal to a 'degree'. The markings start from 0° on the right side and ends with 180° on the left side, and vice-versa.



How to measure an angle using protractor ?



Given $\angle ABC$



Measuring $\angle ABC$

-

Perpendicular Lines

When two lines intersect and the angle between them is a right angle, then the lines are said to be **perpendicular**. If a line AB is perpendicular to CD, we write $AB \perp CD$.

- **Examples of Perpendicular Lines**

Some examples are: the sides of a set square, the arms of a clock, the corners of the blackboard, window and the Red Cross symbol. Alphabets L and T are models for perpendicular lines.

- **Classification of Triangles**

On the basis of angles

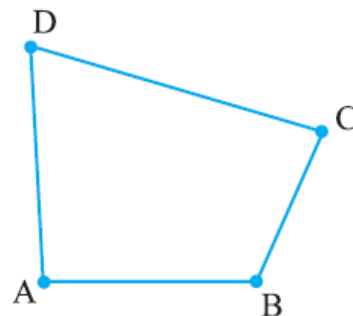
1. **Acute angled triangle:** A triangle with all angles are acute
2. **Right triangle:** A triangle whose one angle is right.
3. **Obtuse angled triangle :** A triangle whose one angle is obtuse.

On the basis of sides:

1. **Equilateral triangle**
2. **Isosceles triangle**
3. **Scalene triangle.**

- **Quadrilaterals**

- It is a polygon which has four sides
- Opposite angles $\angle A$ and $\angle C$; $\angle B$ and $\angle D$
- Opposite sides AB and CD; AD and BC
- Adjacent angles $\angle A$ and $\angle B$
- Adjacent sides AB and BC



-You have two set-squares in your instrument box. **One is $30^\circ - 60^\circ - 90^\circ$**

set-square, the other is $45^\circ - 45^\circ - 90^\circ$ set square.

-Using two or more set-squares we can make various quadrilaterals such as **RECTANGLE, SQUARE,**





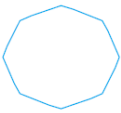
PARALLELOGRAM, RHOMBUS, TRAPEZIUM

* Polygons

- it is a closed figure made of line segments only

-identify a polygon

-naming polygon

Number of sides	Name	Illustration
3	Triangle	
4	Quadrilateral	
5	Pentagon	
6	Hexagon	
8	Octagon	

II. Some illustrations/Examples (with solution) preferably of different types.

i) MCQs : 4

Question 1. A of a circle is a line segment joining any two points on the circle.

- (a) radius (b) diameter (c) circumference (d) chord

Answer: (c) circumference

Question 2.

If two lines intersect each other then the common point between them is known as point of

.....

- (a) Contact (b) vertex (c) intersection (d) concurrence

Answer: (d) concurrence

Question 3.

Two lines in a plane either intersect exactly at one point are

(a) perpendicular(b) intersecting lines(c) equal(d) equidistant

Answer: (b) intersecting lines

Question 4.

Three or more points lying on the same line are known as points.

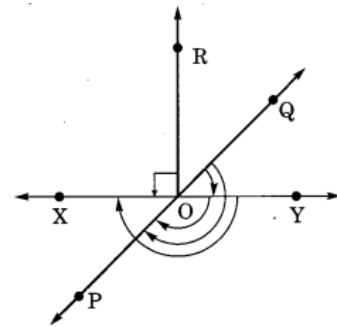
(a) non-collinear(b) collinear(c) intersecting(d) none of these.

Answer: (b) collinear

ii) Case based study: 1

In the given figure, name the following angles as acute, obtuse, right, straight or reflex.

(a) $\angle QOY$ (b) $\angle YOP$ (c) $\angle ROX$ (d) $\angle QOX$ (e) $\angle POQ$



Solution:

(a) $\angle QOY$ = acute angle.(b) $\angle YOP$ = obtuse angle.

(c) $\angle ROX$ = right angle.(d) $\angle QOX$ = reflex angle.

(e) $\angle POQ$ = straight angle

iii) Short answer type question: 3

1. What is measure of right angle?

Answer : 90 degree

2. Name the triangle whose all three sides are of equal measure

Answer : Equilateral triangle

3. Name three solid shapes available I class room

Answer : chalk, duster, tube light

iv) Long answer type questions: 2

1. What fraction of a clockwise revolution does the hour hand of a clock turn through,

when it goes from (a) 3 to 9 (b) 4 to 7 (c) 7 to 10 (d) 12 to 9 (e) 1 to 10 (f) 6 to 3

Answer (a) $\frac{1}{2}$ (b) $\frac{1}{4}$ (c) $\frac{1}{4}$ (d) $\frac{3}{4}$ (e) $\frac{3}{4}$ (f) $\frac{3}{4}$

2. Name the types of following triangles :

- (a) Triangle with lengths of sides 7 cm, 8 cm and 9 cm.
- (b) $\triangle ABC$ with $AB = 8.7$ cm, $AC = 7$ cm and $BC = 6$ cm.
- (c) $\triangle PQR$ such that $PQ = QR = PR = 5$ cm.
- (d) $\triangle DEF$ with $m\angle D = 90^\circ$
- (e) $\triangle XYZ$ with $m\angle Y = 90^\circ$ and $XY = YZ$.
- (f) $\triangle LMN$ with $m\angle L = 30^\circ$, $m\angle M = 70^\circ$ and $m\angle N = 80^\circ$.

Answer (a) scalene triangle (b) scalene triangle (c) equilateral triangle
 (d) right triangle (e) isosceles right triangle (f) acute angled triangle

III .Questions for Practice

i) **MCQs :**

Q1.What is the angle measure for half a revolution?

- (i) 60° (ii) 90° (iii) 180° (iv) 270°

Q2.What fraction of a clockwise revolution does the hour hand of a clock turn through, when it goes from 3 to 9?

- (i) $1/2$ (ii) $1/3$ (iii) $1/4$ (iv) $1/5$

Q3.Where will the hand of a clock stop if it starts at 5 & makes $1/4$ of a revolution, clockwise?

- (i) 7 (ii) 8 (iii) 9 (iv) 10

Q4.Which direction will you face if you start facing south & make one full revolution?

- (i) East (ii) West (iii) North (iv) South

Q5.Where will the hour hand of a clock stop if it starts from 6 & turns through one right angle?

- (i) 7 (ii) 9 (iii) 8 (iv) 10

Q6.What is the measure of a straight angle?

- (i) 75° (ii) 90° (iii) 180° (iv) 360°

Q7.What is the measure of each angle of an equilateral triangle?

- (i) 55° (ii) 70° (iii) 60° (iv) 90°

Q8 The number of right angles turned through by the hour hand of a clock when

it goes from 3 to 6 is

- (i) 1 (ii) 2 (iii) 3 (iv) 4

Q9 Where will the hour hand of a clock stop if it starts from 6 and turns through 1 right angle?

- (i) 3 (ii) 6 (iii) 9 (iv) 12

Q10 The measure of right angle is

- (i) 75° (ii) 90° (iii) 180° (iv) 360°

ii) **Short answer type question**

Q1 How many sides, angles does a triangle have?

Q2 Draw the rough sketch of the following:

- (a) Acute angle
(b) Obtuse angle

Q3 What is the measure of (i) a right angle? (ii) a straight angle?

Q4 What is reflex angle of 200° ?

Q5 Name an angle whose measure is greater than that of a right angle and less than straight angle.

Q6 Write two models for perpendicular lines

Q7 Name a triangle having three equal sides.

Q8 Name a triangle whose all three angles are acute.

Q9 Three measures of sides of triangle are 3 cm , 4 cm, 5 cm . Name the type of triangle

Q10 Name a triangle having a right angle with two sides of equal length

iii) **Long answer type questions**

1. What fraction of a clockwise revolution does the hour hand of a clock turn through, when it goes from

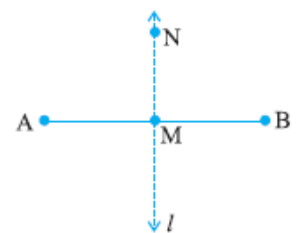
- (a) 3 to 9 (b) 4 to 7 (c) 7 to 10 (d) 12 to 9 (e) 1 to 7 (f) 6 to 3

2. How many right angles do you make if you start facing
 - (a) south and turn clockwise to west?
 - (b) north and turn anti-clockwise to east?
 - (c) west and turn to west?
 - (d) south and turn to north?
3. There are two set-squares in your box. What are the measures of the angles that are formed at their corners? Do they have any angle measure that is common?
4. Name the types of following triangles :
 - (a) Triangle with lengths of sides 7 cm, 8 cm and 9 cm.
 - (b) $\triangle ABC$ with $AB = 8.7$ cm, $AC = 7$ cm and $BC = 7$ cm.
 - (c) $\triangle PQR$ such that $PQ = QR = PR = 5$ cm.
 - (d) $\triangle DEF$ with $m\angle D = 90^\circ$
 - (e) $\triangle XYZ$ with $m\angle Y = 90^\circ$ and $XY = YZ$.
 - (f) $\triangle LMN$ with $m\angle L = 30^\circ$, $m\angle M = 70^\circ$ and $m\angle N = 80^\circ$.
5. How many right angles do you make if you start facing
 - (a) south and turn clockwise to west?
 - (b) north and turn anti-clockwise to east?
 - (c) west and turn to west?
 - (d) south and turn to north?
6. Write down the measures of
 - (a) three acute angles. (b) three obtuse angles. (c) three reflex angles

Case study Questions

1. Perpendicular lines

When two lines intersect and the angle between them is a right angle, then the lines are said to be perpendicular. If a line AB is perpendicular to CD , we write $AB \perp CD$.



Perpendiculars around us!

You can give plenty of examples from things around you for perpendicular lines (or line segments). The English alphabet T is one. Is there any other alphabet which illustrates perpendicular?

Answer the following questions

- In $AB \perp CD$ what is the angle between AB and CD?
- Write two English alphabets which represent perpendicular lines.
- Is letter V model of perpendicular lines?

2. Classifications of Triangles

Triangles can be classified on the basis of sides and angles.

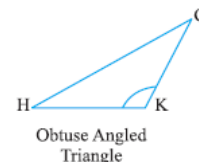
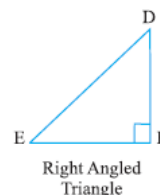
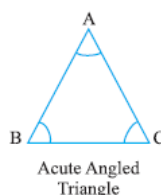
Type of Triangle on basis of angles

- Acute angled triangle : A triangle with all angles are acute
- Right triangle : A triangle with one right angle
- Obtuse angled triangle : A triangle with one angle is obtuse

Type of Triangle on basis of sides

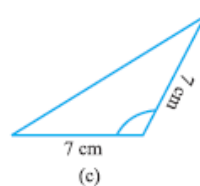
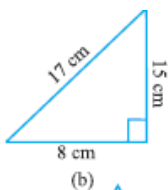
- Equilateral triangle :

A triangle whose all three sides are of equal measure



- Isosceles triangle : A triangle whose two sides are of equal measure

- Scalene triangle : a triangle whose all sides are of different measure



Using above information

answer the following:

- Name the triangle whose all angles are acute.
- Does a obtuse triangle has two right angles
- Name the triangle whose all sides are of equal measure
- In above fig.name triangle (b) in two different ways

Answers for practice Questions

(i) MCQ

1. (iii) 2. (i) 3. (ii) 4 (iv)5. (ii)6.(iii) 7.(iii) 8.(i) 9.(iii) 10.(ii)

(ii) Short answer questions

- Number of sides : 3 Number of angles : 3
-
- (i) 90° (ii) 180°
- 160°
- Obtuse
- Letter T and letter L
- Equilateral
- Acute angled triangle
- Scalene
- Isosceles right triangle

(iii) Long Answer Questions

- a. $\frac{1}{2}$ b. $\frac{1}{4}$ c. $\frac{1}{4}$ d. $\frac{3}{4}$ e. $\frac{1}{2}$ f. $\frac{3}{4}$
- a.1 b. 3 c. 4 d. 2
- $90^\circ, 60^\circ, 30^\circ$ and $90^\circ, 45^\circ, 45^\circ$ common angle : 90°
- a. scalene b. isosceles c. equilateral d. right angled triangle
- e. isosceles right triangle f. acute angled triangle
- a. 1 b. 3 c. 4 b.2

(iv) Case study Questions Answers

- a. 90° b. Letter T and L c. No
- a. acute angled triangle b. NO c. equilateral triangle d. right angled triangle and Scalene

CLASS TEST 20 MARKS

1. Say True or False : 5 × 1 = 5

- (a) The measure of an acute angle $< 90^\circ$. (b) The measure of an obtuse angle $< 90^\circ$.
(c) The measure of a reflex angle $> 180^\circ$. (d) The measure of one complete revolution = 360° .
(e) If $m\angle A = 53^\circ$ and $m\angle B = 35^\circ$, then $m\angle A > m\angle B$.

2. Fill in the blanks with acute, obtuse, right or straight : 5 × 1 = 5

- (a) An angle whose measure is less than that of a right angle is _____.
(b) An angle whose measure is greater than that of a right angle is _____.
(c) An angle whose measure is the sum of the measures of two right angles is _____.
(d) When the sum of the measures of two angles is that of a right angle, then each one of them is _____.
(e) When the sum of the measures of two angles is that of a straight angle and if one of them is acute then the other should be _____.

MCQ (Q 3 TO Q 7)

5 × 1 = 5

3. What is the angle measure for half a revolution?

- (i) 600 (ii) 900 (iii) 1800 (iv) 2700

4. What fraction of a clockwise revolution does the hour hand of a clock turn through, when it goes from 3 to 9?

- (i) $1/2$ (ii) $1/3$ (iii) $1/4$ (iv) $1/5$

5. Where will the hand of a clock stop if it starts at 6 & makes $1/4$ of a revolution, clockwise?

- (i) 7 (ii) 8 (iii) 9 (iv) 10

6. Which direction will you face if you start facing north & make one full revolution?

- (i) East (ii) West (iii) North (iv) South

7. Where will the hour hand of a clock stop if it starts from 6 & turns through one right angle?

- (i) 7 (ii) 9 (iii) 8 (iv) 10

8. What fraction of a clockwise revolution does the hour hand of a clock turn through, $1 \times 5 = 5$

when it goes from (a) 3 to 9 (b) 4 to 7 (c) 7 to 10 (d) 12 to 9 (e) 1 to 10

CLASS TEST 30 MARKS

MCQ Q1 To Q 5

$5 \times 1 = 5$

Q1 What is the angle measure for half a revolution?

- (i) 60^0 (ii) 90^0 (iii) 180^0 (iv) 270^0

Q2. What fraction of a clockwise revolution does the hour hand of a clock turn through, when it goes from 3 to 9?

- (i) $1/2$ (ii) $1/3$ (iii) $1/4$ (iv) $1/5$

Q3. Where will the hand of a clock stop if it starts at 5 & makes $1/4$ of a revolution, clockwise?

- (i) 7 (ii) 8 (iii) 9 (iv) 10

Q4. Which direction will you face if you start facing south & make one full revolution?

- (i) East (ii) West (iii) North (iv) South

Q5. Where will the hour hand of a clock stop if it starts from 6 & turns through one right angle?

- (i) 7 (ii) 9 (iii) 8 (iv) 10

State TRUE or FALSE (Q6 To Q10)

$5 \times 1 = 5$

Q6 The measure of an acute angle is 90° .

Q7 The measure of one complete revolution = 180° .

Q8 The measure of an obtuse angle 180° .

Q9 The measure of Right angle is more than acute angle

Q10 All sides of equilateral triangle are of equal measure.

Fill in the blanks (Q11 To Q15)

$5 \times 1 = 5$

Q11 The turn from north to south is by two right angles; it is called a _____.

Q12 One complete revolution is divided into _____ equal parts.

Q13 An angle whose measure is less than that of a right angle is _____.

Q14 The angle measure between the hands of the clock is _____ when time is 9 o' clock.

Q15 If all the sides in a triangle are equal, then its angles are..... .

Short answer Questions (Q16 To Q15)

$3 \times 5 = 15$

Q16 Draw a rough sketch of a regular hexagon. Connecting any three of its vertices, draw a triangle. Identify the type of the triangle you have drawn.

Q17 Define Equilateral, Isosceles and Scalene triangle.

Q18 Draw figures of Equilateral, Isosceles and Scalene triangle.

Q19 Name the types of following triangles :

(a) Triangle with lengths of sides 7 cm, 8 cm and 9 cm.

(b) $\triangle ABC$ with $AB = 8.7$ cm, $AC = 7$ cm and $BC = 6$ cm.

(c) $\triangle PQR$ such that $PQ = QR = PR = 5$ cm.

Q20 There are two set-squares in your box. What are the measures of the angles that are formed at their corners? Do they have any angle measure that is common?

=====

INTEGERS

The numbers $+1, +2, +3, +4, \dots$ are referred to as **positive integers**.

The numbers $0, +1, +2, +3, \dots$ are called **non-negative integers**.

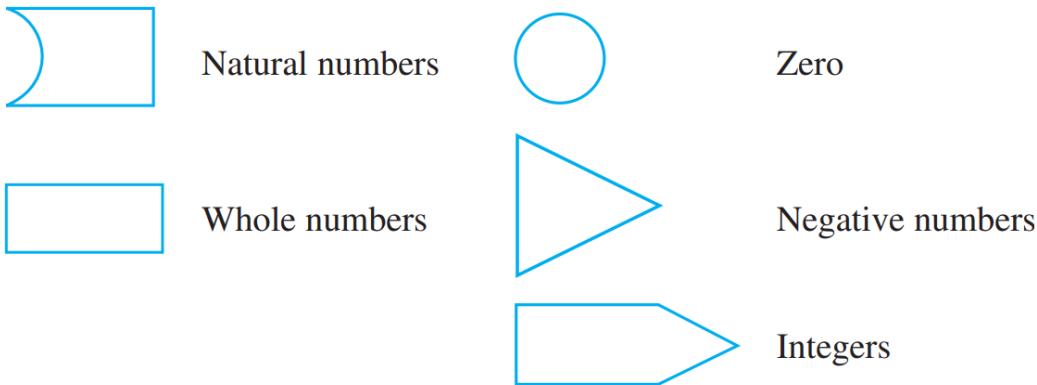
NEGATIVE NUMBERS:

Numbers with a negative sign and are less than zero.



The numbers $-1, -2, -3, -4, \dots$ are referred to as **negative integers**.

INTEGERS: Let us suppose that the figures represent the collection of numbers written against them.



Then the collection of integers can be understood by the following diagram in which all the earlier collections are included:



The collection of numbers $0, +1, -1, +2, -2, +3, -3, \dots$ is called **integers**.

Representation of integers on a number line:



In order to mark -6 and $+2$ on this line, we move 6 points to the left of zero.

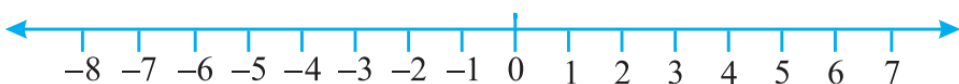


In order to mark $+2$ on the number line, we move 2 points to the right of zero.



Ordering of integers:

Let us once again observe the integers which are represented on the number line.



We know that $7 > 4$ and from the number line shown above, we observe that 7 is to the right of 4. Similarly, $4 > 0$ and 4 is to the right of 0. Now, since 0 is to the right of -3 so, $0 > -3$. Again, -3 is to the right of -8 so, $-3 > -8$.

Addition of Integers:

$(+5) + (+3) = +8, (-6) + (-2) = -4,$
 $(-5) + (+12) = +7, (-8) + (+5) = -3$
 $(+7) + (-10) = -3$

Addition of integers are shown with the help of coloured buttons:

Let us denote one white button by $(+1)$ and one black button by (-1) . A pair of one white button $(+1)$ and one black button (-1) will denote zero i.e. $[1 + (-1) = 0]$

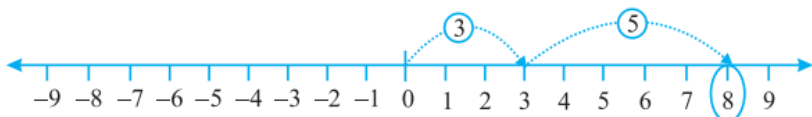
Coloured Button	Integers
	5
	-3
	0

Let us perform additions with the help of the coloured buttons. Observe the following table and complete it.

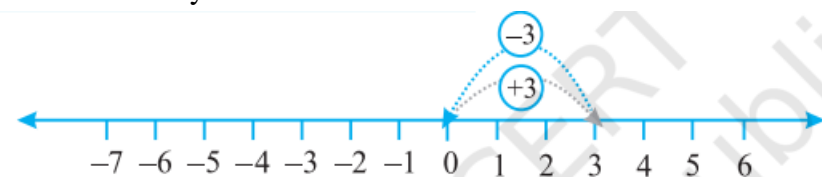
	$(+3) + (+2) = +5$
	$(-2) + (-1) = -3$

Addition of integers on a number line:

Let us add 3 and 5 on number line:



Let us add 3 and -3 . We first move from 0 to $+3$ and then from $+3$, we move 3 points to the left. Where do we reach ultimately?



Numbers such as 3 and $-3, 2$ and -2 , when added to each other give the sum zero. They are called **additive inverse** of each other.

Subtraction of Integers with the help of a Number Line:

We also saw that to add 6 and (-2) on a number line we can start from 6 and then move 2 steps to the left of 6. We reach at 4. So, we have, $6 + (-2) = 4$.



Let us now find the value of $-5 - (-4)$ using a number line. We can say that this is the same as $-5 + (4)$, as the additive inverse of -4 is 4. We move 4 steps to the right on the number line starting from -5 .

QUESTION FOR PRACTICE:

MCQ:

- Q1. Number of whole numbers lying between -5 and 5 is
(A) 10 (B) 3 (C) 4 (D) 5
- Q2. The greatest integer lying between -10 and -15 is
(A) -10 (B) -11 (C) -15 (D) -14
- Q3. The least integer lying between -10 and -15 is
(A) -10 (B) -11 (C) -15 (D) -14
- Q4. On the number line, the integer 5 is located
(A) to the left of 0 (B) to the right of 0 (C) to the left of 1 (D) to the left of -2
- Q5. In which of the following pairs of integers, the first integer is not on the left of the other integer on the number line? (A) $(-1, 10)$ (B) $(-3, -5)$ (C) $(-5, -3)$ (D) $(-6, 0)$
- Q6. The integer with negative sign ($-$) is always less than
(A) 0 (B) -3 (C) -1 (D) -2
- Q7. An integer with positive sign ($+$) is always greater than
(A) 0 (B) 1 (C) 2 (D) 3
- Q8. The successor of the predecessor of -50 is
(A) -48 (B) -49 (C) -50 (D) -51
- Q9. When a negative integer is subtracted from another negative integer, the sign of the result
(A) is always negative (B) is always positive
(C) is never negative (D) depends on the numerical value of the integers
- Q10. Amulya and Amar visited two places A and B respectively in Kashmir and recorded the minimum temperatures on a particular day as -4°C at A and -1°C at B. Which of the following statement is true?
(A) A is cooler than B (B) B is cooler than A
(C) There is a difference of 2°C in the temperature (D) The temperature at A is 4°C higher than that at B.

SHORT ANSWER TYPE QUESTIONS:

- Q1. On the number line, -15 is to the _____ of zero
- Q2. On the number line, 10 is to the _____ of zero.
- Q3. The additive inverse of 14 is _____.
- Q4. Compute: $70 + (-20) + (-30)$
- Q5. If we denote the height of a place above sea level by a positive integer and depth below the sea level by a negative integer, write the following using integers with the appropriate signs:
(a) 200 m above sea level (b) 100 m below sea level
- Q6. Write the opposite of each of the following
(a) Decrease in size (b) Failure (c) Profit of Rs.10 (d) 1000 A.D.
- Q7. Write the integer which is 4 more than its additive inverse.
- Q8. Write the integer which is 2 less than its additive inverse.
- Q9. Sum of two integers is -80 . If one of the integers is -90 , then find the other.
- Q10. Subtract -5308 from the sum $[(-2100) + (-2001)]$

LONG ANSWER QUESTIONS

- Q1. Using the number line, write the integer which is (a) 4 more than -5 (b) 3 less than 2 (c) 2 less than -2 .
- Q2. Match the items of Column I with that of Column II:

Column I	Column II
(i) The additive inverse of +2	(A) 0
(ii) The greatest negative integer	(B) -2
(iii) The greatest negative even integer	(C) 2
(iv) The smallest integer greater than every negative integer	(D) 1
(v) Sum of predecessor and successor of -1	(E) -1

Q3. Write five distinct integers whose sum is 5.

Q4. If we are at 8 on the number line, in which direction should we move to reach the integer

- (a) -5 (b) 11 (c) 0?

Q5. The temperature on a certain morning is -11°C at 5 a. m. If the temperature drops 3 degree at 6 a.m. and rises 5 degree at 8 a.m. and again drops 3 degree at 9 a.m. What is the temperature at 9 a.m.?

Q6. Write the opposite of each of the following:

- (a) 20°C rise in temperature. (b) 60 km south (c) Depositing Rs.100 in the Bank account
 (d) 20 m below the danger mark of the river Brahmaputra (e) Winning by a margin of 2000 votes

ANSWERS:

MCQ

- Q1: D Q2: A Q3: C Q4: B Q5: B Q6: A Q7: A
 Q8: C Q9: D Q10: A

SHORT ANSWER TYPE QUESTIONS:

- Q1: LEFT Q2: RIGHT Q3: -14 Q4: 50 Q5: (a) +200m (b) -100m
 Q6: (a) Increase in size (b) Pass (c) Loss of Rs.10 (d) 1000 B. C. Q7: 0
 Q8: -1 or +1 Q9: -2 or +2 Q10: 1207

LONG ANSWER QUESTIONS

- Q1. (a) -1 (b). -1 (c). 0
 Q2. (i) $\rightarrow (B) - 2$ (ii) $\rightarrow (E) - 1$ (iii) $\rightarrow ((B) - 2)$
 (iv) $\rightarrow (A) 0$ (v) $\rightarrow (B) - 2$
 Q3. There can be many combinations of five integers, such as 5, 3, -3, 6, -6 OR 4, 2, 3, -3, -1 etc., whose sum is 5.
 Q4. (a) Left Side (West) (b) Right Side (East) (c) Left Side (West)
 Q5. -12°C
 Q6.
 (a) 20°C fall in temperature.
 (b) 60 km north
 (c) Withdraw Rs.100 in the Bank account
 (d) 20 m above the danger mark of the river Brahmaputra
 (e) Lost by a margin of 2000 votes

Chapter Test-1 (20 Marks)

- Q1. Write the integer which is 2 less than its additive inverse. (2)
 Q2. Arrange the following integers in the ascending order : -2, 1, 0, -3, +4, -5 (2)
 Q3. The sum of two integers is 30. If one of the integers is -42, then find the other. (2)
 Q4. Write five integers which are less than -100 but greater than -150. (2)
 Q5. Find the value of $49 - (-40) - (-3) + 69$ (2)

Q6. Find the sum of -2 and -3 , using the number line. (2)

Q7. Compute each of the following: (3)

(a) $30 + (-25) + (-10)$ (b) $-50 + (-60) + 50$ (c) $0 - (-6) - (+6)$

Q8. **Case study-based question:** (5)

The faces of two dice are marked $+1, +2, +3, +4, +5, +6$ and $-1, -2, -3, -4, -5, -6$, respectively. Two players throw the pair of dice alternately and record the sum of the numbers that turn up each time and keep adding their scores separately. The player whose score reaches 20 or more first, wins the game.

(i) What can be the possible scores in a single throw of the pair of dice?

(ii) What is the maximum score?

(iii) What is the minimum score?

(iv) A player gets his score 20 as follows: $(5) + (-4) + (6) + (2) + (+5) + (4) + (2)$ Is he a winner?

(v) What is the minimum number of throws needed to win the game?

Chapter Test-2 (30 Marks)

Q1. Write two integers whose sum is less than both the integers. (2)

Q2. The sum of two integers is 47 . If one of the integers is -24 , find the other. (2)

Q3. Fill in the blanks with $>$, $<$ or $=$ sign.

(a) $45 - (-11)$ _____ $57 + (-4)$ (b) $(-25) - (-42)$ _____ $(-42) - (-25)$ (2)

Q4. Using the number line, subtract -4 from 9 . (2)

Q5. Calculate: $1 - 2 + 3 - 4 + 5 - 6 + 7 - 8 + 9 - 10$ (2)

Q6. Write the opposite of each of the following: (3)

(a) 20 m below the danger mark of the river Brahmaputra (b) Depositing Rs.500 in the Bank account

(c) An aeroplane is flying at a height two thousand metre above the ground.

Q7. Temperature of a place at $12:00$ noon was $+10^{\circ}\text{C}$. Temperature increased by 4°C in first hour and decreased by 2°C in the second hour. What was the temperature at $2:00$ pm? (3)

Q8. Find the sum: (a) $(-7) + (-9) + 4 + 16$ (b) $(37) + (-2) + (-65) + (-8)$ (4)

Q9. Find the value of the following **using number line:**

(a) $-8 - (-10)$ (b) $-5 + (-6)$ (4)

Q10. Compare the following pairs of numbers using $>$ or $<$ (6)

0 _____ -8 ; -1 _____ -15 ; 5 _____ -5 ; 11 _____ 15 ; 0 _____ 6 ; -20 _____ 2

From the above exercise, Rohini arrived at the following conclusions:

(a) Every positive integer is larger than every negative integer.

(b) Zero is larger than every negative integer.

(c) Zero is neither a negative integer nor a positive integer.

(d) Farther a number from zero on the right, larger is its value.

(e) Farther a number from zero on the left, smaller is its value.

(f) Zero is less than every positive integer.


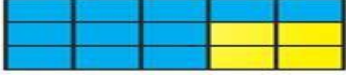
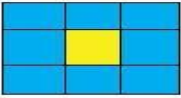

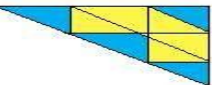



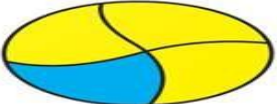
Do you agree with her? Give examples.

FRACTIONS

I – IMPORTANT BASIC CONCEPTS/RESULTS:-

1. A **fraction** is a number representing a part of a whole. This whole may be a single object or a group of objects.
2. A fraction whose numerator is less than the denominator is called a **Proper fraction**; otherwise it is called an **improper fraction**.
3. Numbers of the type $3\frac{6}{2}$, $6\frac{3}{2}$, $2\frac{6}{3}$, $5\frac{5}{3}$ etc. are called mixed **fractions**.
4. An improper fraction can be converted into a mixed fraction and vice versa.
5. Fractions equivalent to a given fraction can be obtained by multiplying or dividing its numerator and denominator by a non-zero number.
6. A fraction in which there is no common factor, except 1, in its numerator and denominator is called a fraction in the **simplest** or **lowest** form.
7. Fractions with same denominators are called **like fractions** and if the denominators are different, then they are called **unlike fractions**.
8. Fractions can be compared by converting them into like fractions and then arranging them in ascending or descending order.
9. Addition (or subtraction) of like fractions can be done by adding (or subtracting) their numerators.

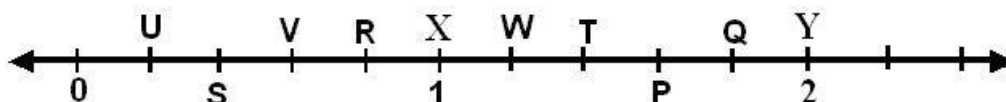
II- EXAMPLES:-

Q1.	<p>1. Write the fraction representing the shaded portion:</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center; margin: 5px;"> <p>(i) </p> </div> <div style="text-align: center; margin: 5px;"> <p>(ii) </p> </div> <div style="text-align: center; margin: 5px;"> <p>(iii) </p> </div> <div style="text-align: center; margin: 5px;"> <p>(iv) </p> </div> <div style="text-align: center; margin: 5px;"> <p>(v) </p> </div> <div style="text-align: center; margin: 5px;"> <p>(vi) </p> </div> <div style="text-align: center; margin: 5px;"> <p>(vii) </p> </div> <div style="text-align: center; margin: 5px;"> <p>(viii) </p> </div> <div style="text-align: center; margin: 5px;"> <p>(ix) </p> </div> </div>
	<p>Q1. Solution:</p> <p>We know that</p> <p>Fraction of the shaded portion = Number of shaded parts / Total number of parts</p>

<p>(i) From the figure we know that Total number of parts = 3</p> <p>Number of parts which are shaded = 2 So we get</p> <p>Fraction of the shaded portion = $\frac{2}{3}$</p>	<p>(ii) From the figure we know that Total number of parts = 15</p> <p>Number of parts which are shaded = 11 So we get</p> <p>Fraction of the shaded portion = $\frac{11}{15}$</p>
<p>(iii) From the figure we know that Total number of parts = 9 Number of parts which are shaded = 8 So we get</p> <p>Fraction of the shaded portion = $\frac{8}{9}$</p>	<p>(iv) From the figure we know that Total number of parts = 7</p> <p>Number of parts which are shaded = 3 So we get</p> <p>Fraction of the shaded portion = $\frac{3}{7}$</p>
<p>(v) From the figure we know that Total number of parts = 9</p> <p>Number of parts which are shaded = 4 So we get</p> <p>Fraction of the shaded portion = $\frac{4}{9}$</p>	<p>(vi) From the figure we know that Total number of parts = 4</p> <p>Number of parts which are shaded = 2 So we get</p> <p>Fraction of the shaded portion = $\frac{2}{4} = \frac{1}{2}$</p>
<p>(vii) From the figure we know that Total number of parts = 2</p> <p>Number of parts which are shaded = 1 So we get</p> <p>Fraction of the shaded portion = $\frac{1}{2}$</p>	<p>(viii) From the figure we know that Total number of parts = 5</p> <p>Number of parts which are shaded = 1 So we get</p> <p>Fraction of the shaded portion = $\frac{1}{5}$</p>
<p>(ix) From the figure we know that Total number of parts = 4</p> <p>Number of parts which are shaded = 1 So we get</p> <p>Fraction of the shaded portion = $\frac{1}{4}$</p>	

A) MULTIPLE CHOICE QUESTIONS-

Q2. The points P,Q,R,S,T,U andV on the line are such that, $US=SV =VR$, and $WT=TP =PQ$.



	<p>1.The fraction represented by P</p> <p>(a) $\frac{6}{5}$</p> <p>(b) $\frac{9}{5}$</p> <p>(c) $\frac{8}{5}$</p> <p>(d) $\frac{7}{5}$</p> <p>Answer: (c)</p>	<p>2.The fraction represented by U</p> <p>(a) $\frac{3}{5}$</p> <p>(b) $\frac{2}{5}$</p> <p>(c) $\frac{4}{5}$</p> <p>(d) $\frac{1}{5}$</p> <p>Answer: (d)</p>
Q.3	<p>1.The equivalent fraction of $\frac{3}{5}$ with denominator 20 is:</p> <p>(a) $\frac{12}{20}$ (b) $\frac{20}{12}$</p> <p>(c) $\frac{10}{20}$ (d) $\frac{15}{20}$</p> <p>Answer: (a)</p>	<p>2.The equivalent fraction of $\frac{3}{5}$ with numerator 9 is:</p> <p>(a) $\frac{15}{9}$ (b) $\frac{9}{11}$</p> <p>(c) $\frac{9}{15}$ (d) $\frac{9}{5}$</p> <p>Answer: (c)</p>
Q 4.	<p>1.The simplest form of $\frac{48}{60}$ is:</p> <p>(a) $\frac{5}{4}$ (b) $\frac{4}{5}$ (c) $\frac{8}{10}$ (d) $\frac{12}{15}$</p> <p>Answer: (b)</p>	<p>2. $\frac{20}{3}$ can be written in mixed fraction as:</p> <p>a) $3\frac{6}{2}$ (b) $6\frac{3}{2}$</p> <p>(c) $2\frac{6}{3}$ (d) $5\frac{5}{3}$</p> <p>Answer: (b)</p>
Q5.	<p>1. The sum of the fractions $\frac{1}{18}$ & $\frac{1}{18}$ given by:</p> <p>(a) $\frac{1}{18}$ (b) $\frac{1}{9}$ (c) $\frac{2}{36}$ (d) $\frac{36}{18}$</p> <p>Answer: (b)</p>	<p>2. The value of $\frac{12}{15} - \frac{7}{15}$:</p> <p>(a) $\frac{1}{3}$ (b) $\frac{5}{2}$</p> <p>(c) $\frac{5}{1}$ (d) $\frac{1}{5}$</p> <p>Answer: (a)</p>

B) SHORT ANSWER TYPE QUESTIONS

Q6. What fraction of an hour is 20 minutes?

Solution: We know that Minutes in an hour = 60,

So 20 minutes of an hour = $20/60 = 1/3$ Therefore, $1/3$ of an hour is 20 minutes.

Answer: $1/3$

Q7. Write the natural numbers from 2 to 12. What fraction of them are prime numbers?

Solution: We know that natural numbers from 2 to 12 are 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12

Then prime numbers from 2 to 12 are 2, 3, 5, 7 and 11 ,So 5 numbers are prime among the 11 numbers

Therefore, $5/11$ of them are prime numbers. Answer: $5/11$

Q8. Represent $2/5$ on a number line.

Solution: The fraction $2/5$ is represented on a number line as given below:

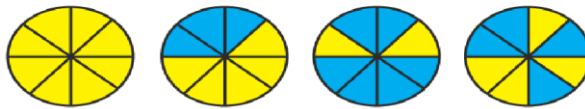


Q9. Write each fraction. Arrange them in ascending and descending order using correct sign $<$, $=$, $>$ between the fractions:

(i) Ascending order



(i)

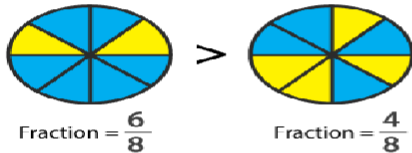


(ii)

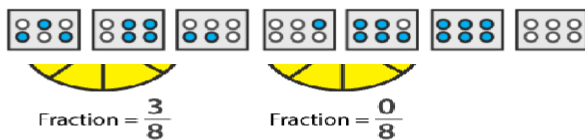


Solution:

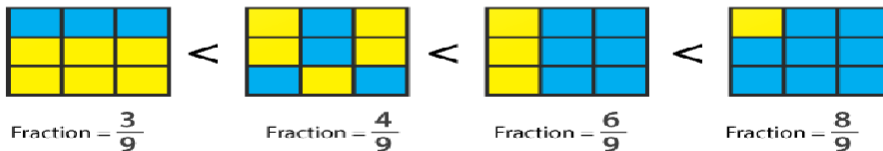
Descending order



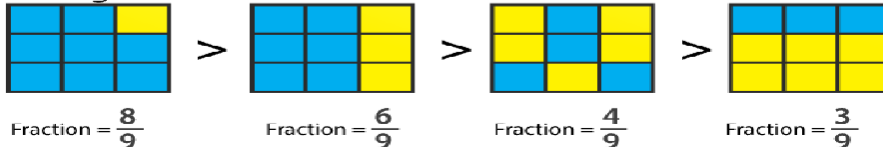
(iii)



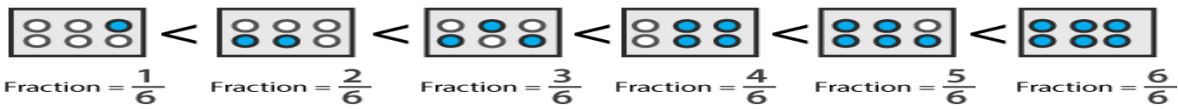
(ii) Ascending order



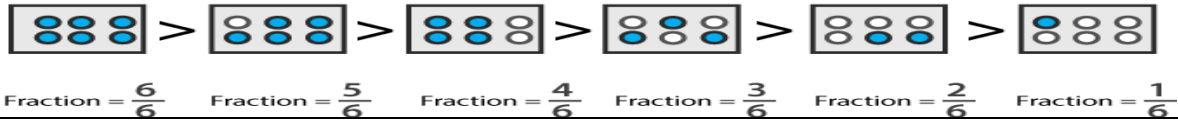
Descending order



(iii) Ascending order



Descending order



C) LONG ANSWER TYPYE QUESTIONS-

Q10. Isha read 25 pages of a book containing 100 pages. Nagma read $\frac{1}{2}$ of the same book. Who read less?

Solution: No. of pages in the book = 100.

We know that

Fraction of book Isha read = $(25/100) \div (25/25) = \frac{1}{4}$ by dividing both numerator and denominator by HCF of 25 and 100

So the fraction of book Nagma read = $\frac{1}{2}$

By comparing $\frac{1}{4}$ and $\frac{1}{2}$ we get the LCM of 4 and 2 = 4

Now convert the fraction into equivalent fraction having denominator as $\frac{1}{4} \times \frac{1}{1}$ and $\frac{1}{2} \times \frac{2}{2}$

$\frac{1}{4} < \frac{1}{2}$

Hence, Isha read less.

Answer: Isha read less.

Q11. Savita bought $\frac{2}{5}$ m of ribbon and Kavita $\frac{3}{4}$ m of the ribbon. What was the total length of the ribbon they bought?

Solution:

Length of ribbon Savita bought = $\frac{2}{5}$ m Length of ribbon Kavita bought = $\frac{3}{4}$ m

So the total length of ribbon they bought = $\frac{2}{5} +$

$\frac{3}{4}$ We know that the LCM of 5 and 4 is 20

So we get

$$= \left[\frac{(2 \times 4)}{(5 \times 4)} \right] + \left[\frac{(3 \times 5)}{(4 \times 5)} \right]$$

On further calculation

$$= \frac{8}{20} + \frac{15}{20}$$

We get

$$= \frac{(8 + 15)}{20} = \frac{23}{20} \text{m}$$

Hence, the total length of the ribbon they bought is $\frac{23}{20}$ m.

D) CASE STUDY BASED QUESTION-

Q12. Ravish had 20 pencils, Shikha had 50 pencils and Priya had 80 pencils. After 4 months, Ravish used up 10 pencils, Shikha used up 25 pencils and Priya used up 40 pencils.

(i) What fraction did each use up? (ii) Check if each has used up an equal fraction of their pencils?

Solution: (i) Number of pencils Ravish had = 20

Number of pencils Ravish used = 10

By dividing the numerator and denominator by HCF of 10 and 20 We get the fraction of pencils used =

$$(10 \div 10) / (20 \div 10) = 1/2$$

Number of pencils Shikha had = 50

Number of pencils used by Shikha = 25

By dividing the numerator and denominator by HCF of 25

$$\text{and } 50 \text{ We get the fraction of pencils used} = (25 \div 25) / (50 \div 25) = \frac{1}{2}$$

Number of pencils Priya had =

80 Number of pencils used by Priya = 40

By dividing the numerator and denominator by HCF of 40 and 80

$$\text{We get the fraction of pencils used} = (40 \div 40) / (80 \div 40) = 1/2$$

(ii) Yes, each has used up an equal fraction of their pencils.

III- PRACTICE QUESTIONS-

(i) MCQ QUESTIONS:-

1) Which of the following is a proper fraction?

- (a) $4/3$ (b) $3/4$ (c) $13/4$ (d) $21/5$

2) Which of the following is an improper fraction?

- (a) $1/2$ (b) $3/7$ (c) $7/3$ (d) $3/15$

3) Which of the following is a fraction equivalent of $2/3$?

- (a) $4/5$ (b) $8/6$ (c) $10/25$ (d) $10/15$

4) A fraction equivalent to $3/5$ is:

- (a) $3+2/5+2$ (b) $3-2/5-2$ (c) $3 \times 2/5 \times 2$ (d) None of these

5) Which of the following are like fractions?

- (a) $3/5, 3/7, 3/11, 3/16$ (b) $5/11, 7/11, 15/11, 2/11$ (c) $2/3, 3/4, 4/5, 6/7$ (d) None of these

6) If $11/4 = 77/x$, then $x = ?$

- (a) 28 (b) $77/28$ (c) 44 (d) 308

7) If $1/3 + 1/2 + 1/x = 4$, then $x = ?$

- (a) $5/18$ (b) $6/19$ (c) $18/5$ (d) $24/11$

8) What is the value of $(a+b) / (a-b)$, If $a/b=4$?

- (a) $3/5$ (b) $5/3$ (c) $4/5$ (d) $5/4$

9) If $45/60$ is equivalent to $3/x$, then $x =$

- (a) 5 (b) 4 (c) 6 (d) 20

10) The correct fraction in the box \square is $\square - 5/8 = 1/4$

- (a) $6/8$ (b) $7/8$ (c) $1/2$ (d) None of these

(ii) SHORT ANSWER QUESTIONS-

1) Mukesh has a box of 24 pencils. He gives half of them to Sunita. How many does Sunita get? How many does Mukesh still have?

2) Represent $0/10$, $1/10$, $5/10$ and $10/10$ on a number line.

3) Convert each of the following into a mixed fraction: (i) $28/9$ (ii) $226/15$

4) Convert each of the following into an improper fraction: (i) $7\frac{1}{4}$ (ii) $8\frac{5}{7}$

5) Replace \square in each of the following by the correct no: (i) $2/7 = 6/\square$ (ii) $5/8 = 10/\square$

6) Find the equivalent fraction of $3/5$, having: (i) Numerator 9 (ii) Denominator 30

7) Find the fraction equivalent to $45/60$, having: (i) Numerator 15 (ii) Denominator 4

8) Reduce each of the following fractions to its lowest term (simplest form):

- (i) $40/75$ (ii) $42/28$

9) Compare the following fractions and put an appropriate sign $<$, $=$, $>$:

- (i) $3/6$ $5/6$ (ii) $4/5$ $0/5$

10) Amit was given $5/7$ of a bucket of oranges.

What fraction of oranges was left in the basket?

(iii) LONG ANSWER QUESTIONS-

1) Match the equivalent fractions and write another 2 for each:

(i) $250/400$ (a) $2/3$

(ii) $180/200$ (b) $2/5$

(iii) $660/990$ (c) $1/2$

(iv) $180/360$ (d) $5/8$

(v) $220/550$ (e) $9/10$

2) The following fractions represent just three different numbers. Separate them in to three groups of equal fractions by changing each one to its simplest form:

(i) $2/12$ (ii) $3/15$ (iii) $8/50$ (iv) $16/100$ (v) $10/60$ (vi) $15/75$ (vii) $12/60$ (viii) $16/96$ (ix) $12/75$

3) Arrange the following fractions in the ascending order: (i) $2/9, 7/9, 3/9, 4/9, 1/9, 6/9, 5/9$

(ii) $7/8, 7/25, 7/11, 7/18, 7/10$ (iii) $37/47, 37/50, 37/100, 37/1000, 37/85, 37/41$

(iv) $3/5, 1/5, 4/5, 2/5$ (v) $2/5, 3/4, 1/2, 3/5$ (vi) $3/8, 3/12, 3/6, 3/4$ (vii) $4/6, 3/8, 6/12, 5/16$

4) Ravish's house is $9/10$ km from his school. He walked some distance and then took a bus for $1/2$ km upto the school. How far did he walk?

5) A piece of a wire $7/8$ metres long broke into two pieces. One piece was $1/4$ meter long. How long is the other piece?

6) Find the difference of:

(i) $13/24$ and $7/16$ (ii) $5/18$ and $4/15$ (iii) $1/12$ and $3/4$ (iv) $2/3$ and $6/7$

(iv) CASE STUDY QUESTIONS:

1) 10. Shikha and Priya have bookshelves of the same size Shikha's shelf is $5/6$ full of book and Priya's shelf is $2/5$ full.

(i) Whose bookshelf is more full?

(ii) By what fraction?

(iii) Why keep books bookself

2) 7. Akash bought vegetables weighing 10kg. Out of this 3kg 500g is onions, 2kg 75g is tomatoes and the rest is potatoes.

(i) What is the weight of the potatoes?

(ii) What is the weight of the Onions?

(iii) What is the weight of the Tomatoes?

ANSWERS:

(i) MCQ QUESTIONS:-

1) (b) 2) (c) 3) (d) 4) (c) 5) (b) 6) (a) 7) (b) 8) (b) 9) (b) 10) (b)

(ii) SHORT ANSWER QUESTIONS-

1) 12 Pencils



2)

3) (i) $3\frac{1}{9}$ (ii) $15\frac{1}{15}$, 4) (i) $29/4$ (ii) $61/7$, 5) (i) 21 (ii) 16, 6) (i) $27/45$ (ii) $18/30$,

7) (i) $15/20$ (ii) $3/4$, 8) (i) $40/75$ (ii) $42/28$, 9) (i) $3/6 < 5/6$ (ii) $4/5 > 0/5$, 10) $2/7$

(iii) LONG ANSWER QUESTIONS-

1) (i) (d), (ii) (e), (iii) (a), (iv) (c), (v) (b)

2) 1st Group- { $2/12, 10/60, 16/96$ }, 2nd Group- { $3/15, 15/75, 12/60$ },

3rd Group- { $8/50, 16/100, 12/75$ }

3) (i) $1/9, 2/9, 3/9, 4/9, 5/9, 6/9, 7/9$ (ii) $7/25, 7/18, 7/11, 7/10, 7/8$

iii) $37/1000, 37/100, 37/85, 37/50, 37/47, 37/41$ (iv) $1/5, 2/5, 3/5, 4/5$

(v) $2/5, 1/2, 3/5, 3/4$ (vi) $3/12, 3/8, 3/6, 3/4$ (vii) $5/16, 3/8, 6/12, 4/6$

4) Distance covered by Ravish is $2/5$ km, 5) Length of Second Piece is $5/8$ m

6) (i) $5/48$ (ii) $1/90$ (iii) $2/3$ (iv) $4/21$

(iv) CASE STUDY QUESTIONS:

1) (i) Shikha book self is more full, (ii) By $13/30$, (iii) Keep safe the books.

2) (i) 4Kg425gm (ii) 3Kg500gm (iii) 2Kg75gm

General Instructions:

- i. All questions are compulsory.
- ii. This paper consists of 12 questions divided into 4 sections: A, B, C, D
- iii. Sections A contain 7 questions of MCQ type and of 1 mark each .
- iv. Section B contains 3 questions of 2 marks each.
- v. Section C contains 1 question of 3 marks.
- vi. Section D contains 1 question of 4 marks.

SECTION – A –

Q1. Write the fraction representing the shaded region in the adjoining figure.

- (a) $3/7$ (b) $5/7$ (c) $4/7$ (d) none of these



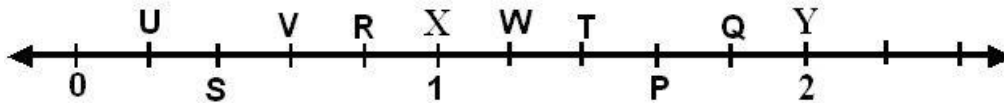
Q2. Fill in the boxes with the correct symbol: $3/4 \square 5/2$

- (a) $>$ (b) $<$ (c) $=$ (d) none of these

Q3. What fraction of an hour is 45 minutes?

- (a) $4/3$ (b) $3/4$ (c) $3/1$ (d) $1/3$

Q4. The points P,Q,R,S,T,U andV on the number line are such that, $US=SV =VR,$ & $WT=TP =PQ.$



Then value of $(U+R)$ is:

- (a) $1/5$ (b) $4/5$ (c) $5/5$ (d) $6/5$

Q5. The simplest form of $48/60$ is:

- (a) $3/5$ (b) $4/5$ (c) $5/4$ (d) $5/3$

Q6. $7\frac{1}{4}$ can be written in improper fraction

- (a) $4/29$ (b) $11/4$ (c) $29/4$ (d) $8/4$

Q7. Which of the following can be written in the box $2/7 = 8/\square$?

- (a) 16 (b) 13 (c) 28 (d) 35

SECTION – B –

Q8. Show $7/4$ on the Number Line.

Q9. Give a proper fraction:

- (a) Whose numerator is 5 and denominator is 7.
- (b) Whose denominator is 9 and numerator is 5.

Q10. Simplify: $[7\frac{1}{4} + 8\frac{3}{4}]$

SECTION- C –

Q11. My elder sister divided the watermelon into 16 parts. I ate 7 out of them. My friend ate 4. How much did we eat between us? How much more of the watermelon did I eat than my friend? What portion of the watermelon remained?

SECTION – D –

Q12. It was estimated that because of people switching to Metro trains, about 33000 tonnes of CNG, 3300 tonnes of diesel and 21000 tonnes of petrol was saved by the end of year 2007. Find the fraction of :

- (i) the quantity of diesel saved to the quantity of petrol saved. (1 mark)
- (ii) the quantity of diesel saved to the quantity of CNG saved. (1 mark)
- (iii) Why CNG preferred to use as fuel in Vehicles? (2 marks)

CLASS TEST – 2 -

TIME- 90 MIN.

M.M. 30

General Instructions:

- i. All questions are compulsory.
- ii. This paper consists of 18 questions divided into 4 sections: A, B, C, D
- iii. Sections A contain 10 questions of MCQ type and of 1 mark each.
- iv. Section B contains 5 questions of 2 marks each.
- v. Section C contains 2 questions of 3 marks.
- vi. Section D contains 1 question of 4 marks.

SECTION – A –

Q1. Write the fraction representing the shaded region in the adjoining

- (a) $3/7$ (b) $5/7$ (c) $4/7$ (d) none of these



figure.

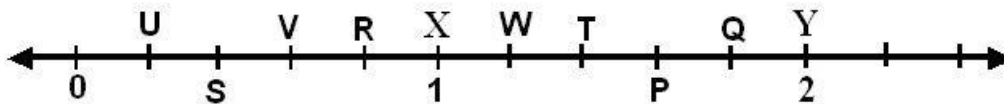
Q2. Fill in the boxes with the correct symbol: $3/4 \square 5/4$

- (a) $>$ (b) $<$ (c) $=$ (d) none of these

Q3. What fraction of an hour is 20 minutes?

- (a) $4/3$ (b) $3/4$ (c) $3/1$ (d) $1/3$

Q4. The points P, Q, R, S, T, U and V on the number line are such that, $US=SV=VR$, & $WT=TP=PQ$.



Then value of $(R+W)$ is:

- (a) $1/5$ (b) $4/5$ (c) $5/5$ (d) $10/5$

Q5. The simplest form of $36/60$ is:

- (a) $3/5$ (b) $4/5$ (c) $5/4$ (d) $5/3$

Q6. $7\frac{1}{5}$ can be written in improper fraction

- (a) $5/36$ (b) $11/5$ (c) $36/5$ (d) $13/5$

Q7. Which of the following can be written in the box $2/7 = 12/\square$?

- (a) 16 (b) 42 (c) 28 (d) 35

Q8. Which of the following is a smaller fraction?

- (a) $5/6$ (b) $4/5$ (c) $5/2$ (d) $5/3$

Q9. 11. The value of $1 + 2/3$ is:

- (a) $5/6$ (b) $4/5$ (c) $5/2$ (d) $5/3$

Q10. Javed was given $5/7$ of a basket of oranges. What fraction of oranges was left in the basket?

- (a) $4/7$ (b) $2/7$ (c) $5/7$ (d) $12/7$

SECTION – B –

Q11. Show $3/5$ on the Number Line.

Q12. Give a proper fraction:

- (a) Whose Numerator is 3 and Denominator is 13.
(b) Whose Denominator is 7 and Numerator is 11.

Q13. Simplify: $[7\frac{1}{4} - 8\frac{3}{4}]$

Q14. Fill up using one of these: '>', '<' or '='

(a) $\frac{1}{2} \square 1$ (b) $\frac{3}{5} \square 1$ (c) $1 \square \frac{7}{8}$ (d) $\frac{4}{4} \square 1$ (e) $\frac{2005}{2005} \square 1$

Q15. Two equivalent fractions of each of the following:

- (a) $5/9$ (b) $2/7$

SECTION- C –

Q16.17. Ramesh had 20 pencils, Sheelu had 50 pencils and Jamaal had 80 pencils. After 4 months, Ramesh used up 10 pencils, Sheelu used up 25 pencils and Jamaal used up 40 pencils. What fraction did each use up? Check if each has used up an equal fraction of her/his pencils?

Q17. Simplify: $[6\frac{1}{4} - 5\frac{3}{4} + 7\frac{1}{4}]$

SECTION – D –

Q12. It was estimated that because of people switching to Metro trains, about 33000 tons of CNG, 3300 tons of diesel and 21000 tons of petrol was saved by the end of year 2007. Find the fraction of:

- (i) What is Ratio of the quantity of diesel saved to the quantity of petrol saved? (1 mark)
(ii) What is Ratio of the quantity of diesel saved to the quantity of CNG saved. (1 mark)
(iii) Why METRO preferred by the people? (2 marks)

Decimals

Important Concepts/ Result:

1. To understand the parts of one whole (i.e. a unit) we represent a unit by a block. One block divided into 10 equal parts means each part is $\frac{1}{10}$ (one-tenth) of a unit. It can be written as 0.1 in decimal notation. The dot represents the decimal point and it comes between the units place and the tenths place.
2. Every fraction with denominator 10 can be written in decimal notation and vice-versa.
3. One block divided into 100 equal parts means each part is $\frac{1}{100}$ (one-hundredth) of a unit. It can be written as 0.01 in decimal notation.
4. Every fraction with denominator 100 can be written in decimal notation and vice-versa.
5. In the place value table, as we go from left to the right, the multiplying factor becomes $\frac{1}{10}$ of the previous factor. The place value table can be further extended from hundredths to $\frac{1}{10}$ of hundredths i.e. thousandths ($\frac{1}{1000}$), which is written as 0.001 in decimal notation.
6. All decimals can also be represented on a number line.
7. Every decimal can be written as a fraction. 8. Any two decimal numbers can be compared among themselves. The comparison can start with the whole part. If the whole parts are equal then the tenth parts can be compared and so on.
9. Decimals are used in many ways in our lives. For example, in representing units of money, length and weight

II. Some illustrations/Examples (with solution) .

1	Which of the following point lies between 0.1 and 0.2 a) 0.19 b) 1.9 c) 10.9 d) 1.09 Ans: (a)
2	Which of the following is true a) $0.3 > 0.4$ b) $0.07 < 0.02$ c) $3 > 0.8$ d) $0.5 = 0.05$ Ans:(c)
3	Two tens and nine tenths in decimal form is given by a) 2.9 b) 20.09 c) 2.09 d) 20.9 Ans (d)
4	The sum of $0.007 + 8.5 + 30.08$ is a) 38.587 b) 3.100 c) 18.508 d) 385.8 Ans (a)
5	Case based study question: Vegetables come in great colours and flavours, but in what inside lies their real beauty. The vegetables constitute important sources of several nutrients, such as potassium, fiber, folate, vitamin A and vitamin C. Naturally, the majority of vegetables have little calories and fat... Some vegetables have higher carbohydrate levels and are often referred to as starchy vegetables. Usually, these are roots and tubers like pipes and yams. The energy of the starchy vegetables is increased due to their content of carbohydrates.



Akash bought vegetables weighing 10 kg. Out of this 3kg 500g is onions, 2kg 75g is tomatoes and the rest is potatoes. What is the weight of the potatoes?

Ans: 4.425 kg

6 What is length of a young gram plant of 65mm in cm.

Ans : 6.5 cm

7 Find the value of $35 - 2.54$.

Ans:32.46

8 Lata spend Rs 9.50 for buying a pen and Rs 2.50 for one pencil .How much money did she spend?

Ans : Rs. 12.00

9 Find the sum of $0.007 + 8.5 + 30.08$.

Ans: 38.587

10 Raju bought a book for Rs. 35.65. He gave Rs. 50 to the shopkeeper. How much money did he get back from the shopkeeper?


Ans: Rs 14.35

III. Questions for Practice:

Number of questions should be as mentioned in the table:

1	Which one of the following is not true a) $1.431 < 1.490$ b) $3.3 > 3.300$ c) $0.3 < 0.4$ d) $3 > 0.8$
2	1mm = _____cm a) 0.1cm b) 0.01 cm c) 1.0 cm d) 0.001cm
3	Subtract Rs. 18.25 from Rs. 20.75 a) Rs. 25 b) Rs. 39 c) Rs. 2.50 d) Rs. 3.9

4	Two tens and five tenths in decimal form is given by a) 2.5 b) 20.05 c) 2.05 d) 20.5
5	725 Paise in rupees can be written as a) 72.5 b) 0.725 c) 7.25 d) 0.0725
6	8888 m in Km can be written as a) 88.88Km b) 888.8Km c) 8.888Km d) 8888Km
7	22g in Kg can be written as a) 2.2Kg b) 0.022Kg c) 2.002Kg d) 2.02Kg
8	What is the place value of 2 in the given decimal 924.75? (a) ones (b) tens (c) tenth (d) hundredth
9	What is the place value of 5 in the given decimal 924.75? (a) ones (b) tens (c) tenth (d) hundredth
10	What should be added to 4.762 to get 7? (a) 2.2 (b) 2.23 (c) 2.328 (d) 2.238
11	Subtract 18.25 from 30.75.
12	Find the value of $9.756 - 6.28$.
13	Subtract 2.051 km from 5.206 km
14	Find the sum $0.007 + 8.5 + 30.08$.
15	Write $20 + 9 + \frac{4}{10} + \frac{1}{100}$ as decimals.
16	Lata spent Rs 9.50 for buying a pen and Rs 2.50 for one pencil. How much money did she spend?
17	Write three hundred six and seven-hundredths as a decimal.
18	Rashid spent Rs 35.75 for Maths book and Rs 32.60 for Science book. Find the total amount spent by Rashid.
19	Abhishek had Rs. 7.45. He bought toffees for Rs. 5.30. Find the balance amount left with Abhishek.
20	Naresh walked 2 km 35 m in the morning and 1 km 7 m in the evening. How much distance did he walk in all?
21	Sunita travelled 15 km 268 m by bus, 7 km 7 m by car and 500 m on foot in order to reach her school. How far is her school from her residence?
22	Samson travelled 5 km 52 m by bus, 2 km 265 m by car and the rest 1km 30 m he walked. How much distance did he travel in all?

23	Kanchan bought a watermelon weighing 5 kg 200 g. Out of this she gave 2 kg 750 g to her neighbour. What is the weight of the watermelon left with Kanchan?
24	Tina had 20 m 5 cm long cloth. She cuts 4 m 50 cm length of cloth from this for making a curtain. How much cloth is left with her?
25	<p>Case based study question: Fruits are an excellent source of essential <u>vitamins</u> and minerals, and they are high in fiber. Fruits also provide a wide range of health-boosting <u>antioxidants</u>, including flavonoids.</p>  <p style="text-align: center;">Importance of Fruits</p> <p style="text-align: center;"><small>@sachshiksha www.sachshiksha.in https://www.sachshiksha.in</small></p> <p>Rahul bought 4 kg 90 g of apples, 2 kg 60 g of grapes and 5 kg 300 g of mangoes. Find the total weight of all the fruits he bought.</p>

IV. ANSWERS :

Q.N.	ANS	Q.N.					ANS
1	(b)	6					(c)
2	(a)	7					(b)
3	(c)	8					(b)
4	(d)	9					(d)
5	(c)	10					(d)
Q. Nos.	Ans.	Q. Nos.	Ans.	Q. Nos.	Ans.	Q. Nos.	Ans.
11	12.50	15	29.41	18	68.35	22	8.347 Km
12	3.476	16	Rs 12	19	2.15	23	2.450 Kg
13	3.155 km	17	306.07	20	3.042	24	15.45 m
14	38.587			21	22.775	25	11.450 kg

Chapter Test-1 (20 marks)

S.Nos.	Questions.	Marks
1	Which is greater? 5.64 or 5.603	2
2	Express 5 paise as rupees using decimals.	2
3	Express 15 cm as metres using decimals.	2
4	Express 75 mm as cm using decimals.	2
5	Nasreen bought 3 m 20 cm cloth for her shirt and 2 m 5 cm cloth for her trouser. Find the total length of cloth bought by her.	3
6	Radhika's mother gave her Rs 10.50 and her father gave her Rs 15.80, find the total amount given to Radhika by the parents.	3
7	Raju bought a book for Rs 35.65. He gave Rs 50 to the shopkeeper. How much money did he get back from the shopkeeper?	3
8	Rani had Rs 18.50. She bought one ice-cream for Rs 11.75. How much money does she have now?	3

Chapter Test-2 (30marks)

S.Nos.	Questions.	Marks
1	Which is greater? 5.64 or 5.605	2
2	Find the sum of $0.007 + 8.5 + 30.08$.	2
3	Express 28 m as km using decimals.	2
4	Express 72 0g as kg using decimals.	2
5	Find the value of : (a) $9.756 - 6.28$	2
6	Subtract 202.54 m from 250 m	2
7	Naresh walked 2 km 35 m in the morning and 1 km 7 m in the evening. How much distance did he walk in all?	3
8	Rashid spent ` 35.75 for Maths book and ` 32.60 for Science book. Find the total amount spent by Rashid.	3
9	Rahul bought 4 kg 90 g of apples, 2 kg 60 g of grapes and 5 kg 300 g of mangoes. Find the total weight of all the fruits he bought.	3
10	Samson travelled 5 km 52 m by bus, 2 km 265 m by car and the rest 1km 30 m he walked. How much distance did he travel in all?	3
11	Sunita travelled 15 km 268 m by bus, 7 km 7 m by car and 500 m on foot in order to reach her school. How far is her school from her residence?	3
12	Ravi purchased 5 kg 400 g rice, 2 kg 20 g sugar and 10 kg 850g flour. Find the total weight of his purchases.	3

DATA HANDLING

I. Important Concepts/ Results

Data: A data is a collection of numbers gathered to give some information.

Organisation of data: To get particular information from the given data quickly, the data can be arranged in a tabular form using tally marks.

Example: Ekta is asked to collect data for size of shoes of students in her Class VI. Her findings are recorded in the manner shown below:






5, 4, 7, 5, 6, 7, 6, 5, 6, 6, 5, 4, 5, 6, 8, 7, 4, 6, 5, 6, 4, 6, 5, 7, 6, 7, 5, 7, 6, 4, 8, 7

Solution: Ekta prepared a table using tally marks.

Shoe size	Tally marks	Number of students
4		5
5	 	8
6	 	10
7	 	7
8		2


Pictograph: A pictograph represents data through pictures of objects. It helps answer the questions on the data at a glance.

Example: The colours of fridges preferred by people living in a locality are shown by the following pictograph:

Colours	Number of people  = 10 people
Blue	
Green	
Red	
White	

(a) Find the number of people preferring green colour.

(b) How many people liked red colour?

Solution: (a) Green colour is preferred by 20 people. [ = 10, so 2 pictures indicate 2×10 people].

(b) Red colour is preferred by 30 people. [ = 10, so 3 pictures indicate 3×10 people].

II. Some Illustrations/ Examples (with solution)

i) MCQs

1. The frequency of the tally mark- |||| ||| \ \

- a.) 6 b.) 5 c.) 10 d.) 7

Ans.: c.) 10

2. Representation of data in the form of picture is called _____

- a.) Bar graph b.) Pictograph c.) Histogram d.) None of these

Ans.: b.) Pictograph

3. Listing of the data in the form in which these are collected are known as

- a.) Raw data b.) Arrayed data c.) Secondary data d.) Organised data

Ans.: a.) Raw data

4. The number of times a particular data occurs in the observation is called as







- a.) Frequency b.) Mean c.) Collection of data d.) None of these

Ans.: a.) Frequency

ii) Case based study

1. The following pictograph shows the number of absentees in a class of 30 students during the previous week.

Read the table and answer the questions given below:

Days	Number of absentees  = 4 students
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

i.) On which day were the maximum numbers of students absent?

- a. Thursday b. Friday c. Wednesday d. Saturday

ii.) Which day had full attendance?

- a. Thursday b. Friday c. Wednesday d. Saturday

iii.) What was the total number of absentees in that week?

- a. 600 b. 125 c. 50 d. 100

iv.) What was the total number of absentees on Tuesday?

- a. 20 b. 24 c. 50 d. 10

Answers:

- i.) b. Friday ii.) c. Wednesday iii.) d. 100 iv.) b. 24

iii) Short answer type questions


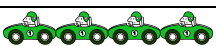

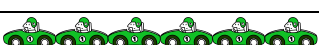



1. Following table shows the number of bicycles manufactured in a factory during the year 1998 to 2002. Read the table and answer the questions given below:

Years	No. of bicycles manufactured
1998	800
1999	600
2000	900
2001	1100
2002	1200

- i.) In which year were the maximum numbers of bicycles manufactured?
 ii.) In which year were the minimum numbers of bicycles manufactured?
 iii.) How many bicycles were manufactured from 1998 to 2002?


Answers: i.) 2002 ii.) 1999 iii.) $800+600+900+1100+1200= 4600$

2. Following is the pictograph of the number of Cars manufactured by a factory in a particular week.






Days	Number of Cars manufactured  =300 Cars
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Answer the following questions based on the pictograph given above:

- i.) On which day were the least number of Auto manufactured?
 ii.) How many cars were manufactured on Thursday?

Answers: i.) Saturday ii.) 4×300 (=300)

3. The sale of electric bulbs on different days of a month is shown below. From the following above pictograph:

Months	Number of electric bulb  =5 bulbs
January	
February	
March	
April	

i.) Find the number of electric bulb purchased for a lodging house during February








ii) In which month the sale of electric bulb is maximum.

Answers: 1) 20 bulbs [$5 \times 4 = 20$]

2) March

iv) Long answer type questions

1. The following pictograph shows the number of Bus manufactured during a week. Read the table and answer the questions given below:

Days	Number of bus manufactured  =100 buses
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

i.) On which day were the least number of buses manufactured?

ii.) Find the number of buses manufactured on Wednesday.

iii.) On which day was the maximum number of buses manufactured?

iv.) Find out the approximate number of buses manufactured in the particular week?

v.) On which days were the same number of buses manufactured?

Answers: i) Monday ii) 700 [7×100] iii) Wednesday iv) $(3 + 4 + 7 + 5 + 6 + 4) \times 100 = 2900$

v) Tuesday and Saturday

2. Mohan threw a dice 40 times and noted the number appearing each time as shown below:

1	3	5	6	6	3	5	4	1	6
2	5	3	4	6	1	5	5	6	1
1	2	2	3	5	2	4	5	5	6
5	1	6	2	3	5	2	4	1	5

i.) Make a table and enter the data using tally marks.

ii.) Find the number that appeared.

- (a) The minimum number of times
- (b) The maximum number of times
- (c) Find those numbers that appear an equal number of times.

Answers: i.)

ii.) a.) 4

b.) 5

c.) 1, 6

III. Questions for Practice

i) MCQs

1. The frequency of the tally mark - ||||

- (a) 6
- (b) 4
- (c) 10
- (d) 7

2. The frequency of the tally mark - |||| |||| ||

- (a) 6
- (b) 13
- (c) 12
- (d) 4

3. The tally mark for the frequency 9 is

- (a) |||
- (b) ||||
- (c) |||| ||
- (d) |||| |||

4. Which observation in the following data has maximum frequency?

1, 1, 2, 4, 3, 2, 1, 2, 2, 4

- (a) 4
- (b) 3
- (c) 1
- (d) 2

5. A pictograph represents data in the form of objects or parts of object.

- (a) pictures
- (b) vertical bars
- (c) both
- (d) none

ii) Short answer type questions

Number on Dice	Tally marks	Number of times appeared
1		7
2		6
3		5
4		4
5		11
6		7

1. The following are the number of electric bulbs purchased for a lodging house during the first six months of a year. Represent the details by a pictograph.

Months	Number of bulbs
January	20
February	30
March	40

2. In a Science test, the following marks were obtained by 40 students. Arrange these marks in a table using tally marks.

8, 1, 3, 7, 6, 5, 5, 4, 4, 2, 4, 5, 3, 7

3. The choices of the fruits of 20 students in a class are as follows:

A, M, O, O, O, B, G, M, M, A, M, B, G, B, O, G, O, A, M, O

where A, B, G, M and O stands for the fruits Apple, Banana, Grapes, Mango and Orange, respectively.

Which three fruits are liked by an equal number of students?

4. According to the data of question 3, which fruit is liked by most of the students?

5. In a pictograph if a symbol represents 30 chapattis then the symbol represents how many chapattis?

6. In a pictograph, if a symbol represents 5 flowers in a basket, then stands for how many flowers?


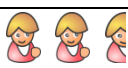

7. Thirty students were interviewed to find out what they want to be in future. Their responses are listed as below:


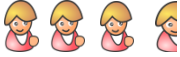
doctor, engineer, doctor, pilot, officer, doctor, engineer, doctor, pilot, officer, pilot, engineer, officer, pilot, doctor, engineer, pilot, officer, doctor, officer, doctor, pilot, engineer, doctor, pilot, officer, doctor, pilot, doctor, engineer.

Arrange the data in a table using tally marks.

8. Represent 17 in the form of tally marks.

9. Following pictograph represents some names of girls listed in the telephone directory of a city.

Names	Number of girls  =10 girls
Anisha	
Jyotsna	

Ameena	
Nancy	

- (a) How many girls have name 'Nancy'?
- (b) How many girls have names Ameena and Anisha?







10. Annual expenditure of a company in the year 2022-23 is given below:

Terms	Expenditure (in lakh rupees)
Salaries of employees	60
Advertisement	5
Purchase of machinery	70
Electricity and water	20
Transportation	15

- (a) The maximum expenditure of the company is where?
- (b) How much money does the company spend in the 'Salary of employees'?

iii) Long answer type questions

1. The number of scouts in a school is depicted by the following pictograph:

Class	Number of scouts  = 20 scouts
VI	
VII	
VIII	
IX	
X	

(a) Which class has the minimum number of

scouts?

- (b) Which class has the maximum number of scouts?
- (c) How many scouts are there in Class VI?
- (d) Which class has exactly four times the scouts as that of Class X?
- (e) What is the total number of scouts in the Classes VI to X?

2. The following table shows the daily production of T.V. sets in an industry for 7 days of a week:

Days	Number of icons
Mon	300
Tue	400
Wed	150
Thurs	250
Fri	100
Sat	350
Sun	200

Represent the above information by a pictograph.

3. The following table shows the number of cars sold by five dealers in a particular month:

Dealer	Cars sold
Sanghi Brothers	60
Rukmani Motors	40
Bhagirath Motors	20
Patel Motors	15
Kasliwal Honda	10

Represent the above information by a pictograph.










4. In an examination, the grades achieved by 30 students of a class are given below. Arrange these grades in a table using tally marks.

B, C, C, E, A, C, B, B, D, D, D, D, B, C, C, C, A, C, B, E, A, D, C, B, E, C, B, E, C, D.

iv) Case based study

1. Answer the following questions by reading the pictograph given

The below pictograph shows the numbers of bicycles sold in the particular year from 2000-2004

Year	Number of bicycles sold	 = 1500 bicycles
2000	 	
2001	  	
2002	  	

2003	
2004	

(a) In which year maximum number of bicycles was sold?

- i. 2001 ii. 2002 iii. 2003 iv. 2004

(b) In which year minimum number of bicycles was sold?

- i. 2001 ii. 2002 iii. 2003 iv. 2004

(c) How many bicycles were sold in the year 2002?

- i. 3000 ii. 4000 iii. 4500 iv. 5000

2. The table shows the number of children in each of the 35 families surveyed.

Number of children	Tally Marks	Number of families
2		15
3		10
4		6
5		4

(a) How many families have less than 4 children?

(b) How many children does the maximum number of families have?

(c) Find the difference in the number of families having 2 and 4 children.

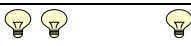

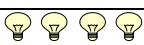
IV. ANSWERS

i. MCQs

1. (b) 42. (c) 123. (c) ||| ||||4. (d) 25. (a) pictures

ii. Short answer type questions

1.

Months	Number of electric bulb =10 bulbs
January	
February	
March	

2.

Marks obtained	Tally marks	Number of students
1		1
2		1
3		2
4		3
5		3
6		1
7		2
8		1

3. A, B and G 4. Orange 5. 15 chapattis 6. 15 flowers

7.

Future profession	Tally marks	Number of students
Doctor		10
Engineer		6
Officer		6
Pilot		8

8. ||| ||| ||| ||






9. (a) 35 girls, (b) 55 girls




10. (a) Purchase of machinery, (b) 60,00,000

iii. Long answer type questions







1. (a) X, (b) VIII, (c) 80, (d) VI, (e) 3,200

2.

Days	Number of icons  = 50 TVs
Monday	
Tuesday	
Wednesday	
Thursday	

Friday	
Saturday	
Sunday	

3.

Dealer	Number of icons  =10 cars
Sanghi Brothers	
Rukmani Motors	
Bhagirath Motors	
Patel Motors	
Kasliwal Honda	

4.

Grades	Tally marks	Number of students
A		3
B	 	7
C	 	10
D	 	6
E		4

iv Case based study

1. (a) iv, (b) iii, (c) iii

2. (a) 25 , (b) 2 , (c) 9

V. CHAPTER TESTS

TEST 1 (Data Handling)

M.M.: 20

TIME: 40 MIN.

SECTION A (Each question carries 1 marks)

MCQs:

Q.1 The frequency of 2 in the observation: 1, 2, 4, 5, 2, 6, 7, 2, 3, 2 is

- (a) 1 (b) 2 (c) 3 (d) 4

Q.2 The tally marks for the data 4 is

- (a) || (b) ||| (c) |||| (d) |||||

Section B (Each question carries 2 marks)

Short answer type questions:





Q.3 Mohan threw a dice 15 times and recorded the number of appearing each time as shown below:

2,3,4,2,1,5,6,3,2,3,1,2,3,3,1

Find the numbers that appears maximum number of times.

Q.4 In the pictograph if the value of the symbol $\hat{\phi}$ = 3. If this symbol $\hat{\phi}$ occurs 4 times in the observation then what will be its value?

Q.5 The colours of the T shirts preferred by the people living in the locality are shown by the following pictograph:

Colours	No. Of people  =6 people
Blue	
Green	
Red	

Find the number of people that preferring Green colour?

Section C (Each question carries 4 marks)

Q.6 In a Hindi test the following marks were obtained by 30 students:







8,9,3,4,5,6,5,7,8,9,5,6,7,3,8,6,8,9,5,4,6,5,7,8,7,7,6,7,8,5

Arrange these marks in a table using tally marks and answer the following questions:

(i)How many students obtained marks below 7?

(ii)Find how many students obtained marks equal to or less than 6?

Q.7 The sale of kites on different days of a week is shown below:

Days	Number of kites  = 4 kites
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Observe the pictograph and answer the following questions:

- How many kites were sold on Friday?
- On which day the maximum number of kites was sold?
- On which day same number of kites was sold?
- On which day minimum number of kites was sold?

Q.8 The heights (in cm) of 30 students of class 8 are recorded as follows:

150,152,154,152,148,149,150,155,159,260
 152,154,160,149 ,150,152 155,145,145,154
 148,153,155,150 ,160,154 ,152,149,152,148

- Prepare a frequency table using tally marks (2 marks)
 - How many students have height 150 cm? (1 mark)
- Find the difference between maximum height and minimum height of the students (1 mark)

TEST 2 (Data Handling)

M.M.: 30

TIME: 60 MIN.

SECTION A (Each question carries 1 marks)

MCQ:

Q.1 The frequency of 5 in the observation: 1, 2, 4 5, 2 6, 7,2,3,2 is

- (a) 1 (b) 2 (c) 3 (d) 4





Q.2 The tally marks for the data 8 is(a) |||| (b) ||| (c) |||| ||| (d) |||||

Section B (Each question carries 2 marks)

Very Short answer type questions:

Q.3 In the pictograph if the value of the symbol $\diamond = 7$ If this symbol \diamond occurs 6 times in the observation then what will be its value?





Q.4 The colours of the curtains preferred by the people living in the locality are shown by the following pictograph:

Colours	No. Of People	=10 People
Grey		
Blue		
Brown		

Find the number of people that preferring blue coloured curtains?

Section C (Each questions carries 3 marks)

Q.5 The pictograph shows the numbers of goals scored by four soccer teams in a season.

Name of soccer teams	Number of goals scored  = 4 goals
Mohan Bagan	
East Bengal	
Md. Sports Team	

Observe the pictograph and answer the questions given below:

(a) Find the number of goals scored by East Bengal.

(b) Find the total number of goals scored in the season.

Q.6 A survey of 100 school students was done to find which activity they prefer to do in their free time:

Preferred activity	Number of Students
Playing	45
Reading story books	10
Watching T.V.	30
Listening music	10
Painting	5

Represent the above data in the form of pictograph (take 1 symbol=5 students).

Q.7 The heights (in cm) of 30 students of class 8 are recorded as follows:

150,152,154,152,148,149,150,155,159,260

152,154,160,149 ,150,152 155,145,145,154

148,153,155,150 ,160,154 ,152,149,152,148

(i)Prepare a frequency table using tally marks (2 marks)

(ii)How many students have height 150 cm?(1 mark)

Q.8 The following table gives information about the circulation of newspaper (dailies) in a town in five languages:

Languages	English	Hindi	Tamil	Punjabi	Gujarati
Number of newspapers	2000	3000	1000	1500	500

Prepare a pictograph of the above data using a symbol of your choice, each representing 1000 newspapers.

Section D (Each question carries 4 marks)

Q.9 In a Hindi test the following marks were obtained by 30 students:

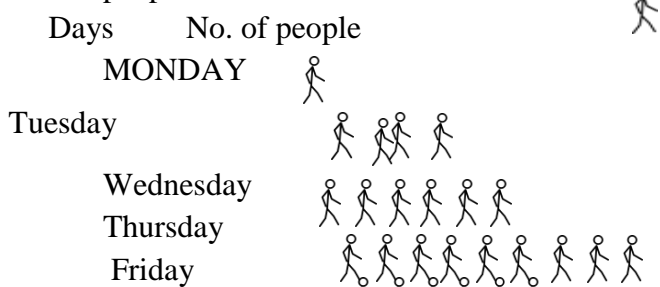
8,9,3,4,5,6,5,7,8,9,5,6,7,3,8,6,8,9,5,4,6,5,7,8,7,7,6,7,8,5

Arrange these marks in a table using tally marks and answer the following questions:

(i)How many students obtained marks below 7?

(ii) Find how many students obtained marks equal to or less than 6?

Q.10 The number of people going for a walk in the garden throughout a week were observed: =4
people



Observe the pictograph and answer the following questions:

- How many people had gone to garden on Friday?
- On which day the maximum number of people went to the garden?
- On which day same number of people went to the garden?
- On which day minimum number of people went to the garden?

Q.11 The total number of animals in these five villages is given as follows:

Village A: 80

Village B: 120

Village C: 90

Village D: 40

Village E: 60

Prepare a pictograph of the total number of animals using one symbol to represent ten animals and answer the following questions:

- How many symbols represent the animals in village E?
- Which of the following village has the maximum number of animals?
- Which of the following village has more animals: village A or village C?

MENSURATION

I. Important Concepts/ Results

Perimeter: The distance covered along the boundary forming a closed figure when you make one complete round of it is called as Perimeter.

Perimeter of rectangle = $2 \times (\text{length} + \text{breadth})$

Perimeter of a Square = $4 \times \text{length of side}$

Perimeter of equilateral triangle = $3 \times \text{length of a side}$

Area: The amount of a surface enclosed by a closed figure is called its area.

Important points for calculating the area by counting squares:

1. The area of one full square is taken as 1 square unit.
2. Ignore portions of the area that are less than half a square.
3. If more than half of a square is in region. Just count it as one square.
4. If exactly half the square is counted, take its area as $\frac{1}{2}$ square units.

Area of a Rectangle = $\text{length} \times \text{breadth}$

Area of a square = $\text{side} \times \text{side}$

Some Examples (with solutions):

II. Some Illustrations/ Examples (with solution)

i) MCQs

1. The perimeter of a triangle of sides 3 cm, 4 cm, 5 cm is :

(a) 5 cm (b) 9 cm (c) 12 cm (d) 10 cm

Solution: perimeter = sum of all the three sides

$$= (3+4+5) \text{ cm} = 12 \text{ cm}$$

Option (c) 12 cm

2. The side of a square of perimeter 20 cm is

(a) 20 cm (b) 10 cm (c) 5 cm (d) 6 cm

Solution: side of a square = $\text{perimeter}/4$

$$= 20/4 = 5 \text{ cm}$$

Option (c) 5 cm

3. The area of square with side 14 cm is

(a) 14 cm (b) 56 cm (c) 196 cm (d) 196 cm^2

Solution: Area of a square = $\text{side} \times \text{side}$

$$= 14 \times 14 = 196 \text{ cm}^2$$

Option (d) 196 cm^2

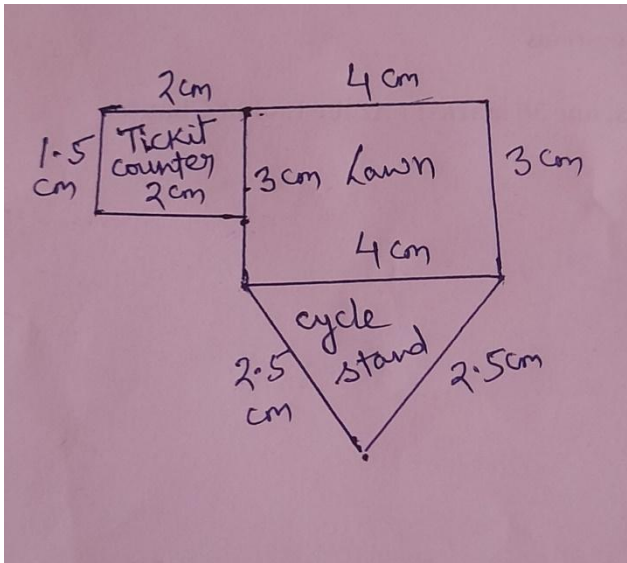
4. The perimeter of equilateral triangle with side 7 cm is

(a) 7 cm (b) 14 cm (c) 21 cm (d) 28 cm

Solution: perimeter of equilateral triangle = $3 \times \text{length of a side} = 3 \times 7 = 21 \text{ cm}$.

ii) Case based study

1. Ramkaran went to the amusement park for the picnic.



The dimensions of the park are as shown above:

On the basis of the dimensions of the park answer the following questions:

1. What is the shape of the cycle stand?
2. What is the area of the ticket counter?
3. Find the perimeter of the park?

Solution:

1. Isosceles triangle

2. Area of the ticket counter = $2 \times (l+b)$ (shape is Rectangle)

$$= 2 \times (2 + 1.5)$$

$$= 2 \times 3.5$$

$$= 7 \text{ cm}$$

3. Perimeter of the park = distance covered in one complete round of the park.

$$= 2 + 1.5 + 2 + 1.5 + 2.5 + 2.5 + 3 + 4$$

$$= 19 \text{ cm}$$

iii) Short answer type questions

1. Seema went to a park 150 m long and 70 m wide. She took one complete round of it. What is the distance covered by her ?

Solution: Distance covered in one complete round = perimeter of the park

$$= 2 \times (l + b)$$

$$= 2 \times (150 + 70)$$

$$= 2 \times 220$$

=440 cm

2. The area of a rectangular piece of a cardboard is 36 sq. Cm. and its length is 9 cm. What is the width of the cardboard?

Solution: Area of the cardboard = length \times breadth

$$36 = 9 \times \text{width}$$

$$\text{Width} = 36 / 9$$

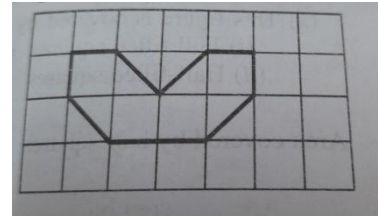
$$\text{Width} = 4 \text{ cm.}$$

3. Find the area of the adjoining figure:

Solution: Area of the figure = $(4 + 0.5 + 0.5 + 0.5 + 0.5)$

$$= 4 + 2$$

$$= 6 \text{ sq. cm.}$$



iv) Long answer type questions

1. Salim wants to cover a room 3 m wide and 4 m long by squared tiles. If each square tile is of side 0.5 m, then find the number of tiles required to cover the floor of the room.

Solution: Number of tiles = area of the room / area of one tiles

Area of the room = length \times breadth

$$= 3 \times 4$$

$$= 12 \text{ sq. M}$$

Area of one tiles = side \times side

$$= 0.5 \times 0.5$$

$$= 0.25$$

Number of tiles = $12 / 0.25$

$$= 12 \times 100 / 25$$

$$= 48$$

2. Pinky runs around a square field of side 75 m. Bob runs around a rectangular field with length 160 m and breadth 120 m. Who covers more distance and by how much?

Solution: Distance covered by Pinky = perimeter of the square field

$$= 4 \times \text{length of a side}$$

$$= 4 \times 75 = 300 \text{ m}$$

Distance covered by Bob = perimeter of rectangular field

$$= 2 \times (\text{length} + \text{breadth})$$

$$= 2 \times (160 + 120) = 2 \times 280 = 560 \text{ m}$$

Hence Bob covered more distance by $(560 - 300)260$ m

III. Questions for Practice

i) MCQs

1. The perimeter of equilateral triangle of side $2a$ cm is
(a) 6 cm (b) $6a$ cm (c) $8a$ cm (d) 10 cm
2. The perimeter of regular Pentagon of side 5 cm is
(a) 20 cm (b) 30 cm (c) 25 cm (d) 35 cm
3. The perimeter of a rectangular plot of length 2.5 cm and breadth 1.5 cm is
(a) 20 cm (b) 24 cm (c) 36 cm (d) 8 cm
4. The perimeter of regular hexagon is 42 cm , find the length of each side of the hexagon.
(a) 82 cm (b) 7 cm. (c) 24 cm (d) 4.2 cm
5. The distance covered by Jacob in completing one round of the square park with length of the side 3.5 cm
(a) 13 cm (b) 15 cm (c) 14 cm (d) 18 cm
6. The area of the square field is 84 m² , if the breadth of the field is 10 m then length of the field is
(a) 8 cm (b) 10 m (c) 8.4 m (d) 8.4 cm
7. The area of the rectangular park of length 25 m and breadth 12 m is
(a) 100 m² (b) 200 m² (c) 300 m² (d) 400 m²
8. The cost of fencing a square park of side 250 m at the rate of ₹ 20 per metre is
(a) ₹ 10000 (b) ₹ 20000 (c) ₹ 30000 (d) ₹ 40000
9. The area of square plot of side 24 m is
(a) 156 m² (b) 48 m² (c) 576 m² (d) 476 m²
10. The sides of a triangle are 12 cm and 14 cm. The perimeter of the triangle is 36 cm. The third side is
a) 10 cm (b) 12 cm (c) 14 cm (d) 14 CM

ii) Short answer type questions

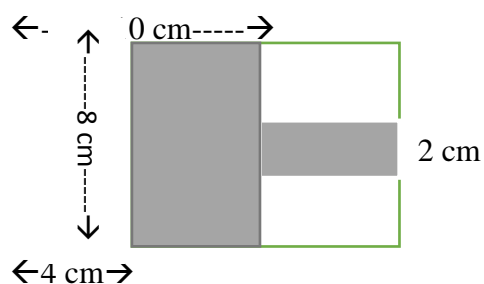
1. The area of rectangular cardboard is 300 sq. m. If the length of the cardboard is 50 m then find the width of the cardboard?
2. The perimeter of a regular Pentagon is 300 cm. Find the length of each side of a Pentagon.
3. what is the of the tape required to rap over the rectangular frame of length 20 cm and width 15 cm?
4. A table top measures 1 m 50 cm by 50 cm. What is the perimeter of the top of the table ?

5. A piece of thread is 60 cm long. What will be the length of each side if the thread is used to form a regular hexagon?
6. Find the cost of fencing an equilateral shaped park of side 125 m at the rate of ₹ 10 per metre.
7. Find the area of rectangle whose sides are 4 m and 1.5 m
8. A hall is 6 m long and 3 m wide. A square carpet of sides 4 m is laid on its floor. Find the area of the floor that is not carpeted?
9. A square of side 3 cm is cut from the rectangular cardboard of length 6cm and breadth 4 cm. Find the area of the remaining cardboard.?
10. Find the area in square metre of piece of cloth 1 m 25 cm wide and 2 m long.

iii) Long answer type questions

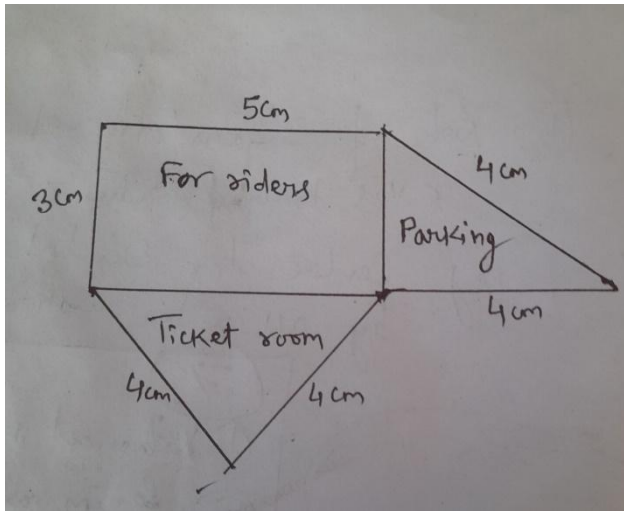
1. An Athlete A takes 15 rounds of rectangular park 50 m long and 25 m wide. Another Athlete B takes 20 round of Square Park of 30 m side. Which Athlete has covered more distance?
2. A farmer has a rectangular field of length and breadth 240 m and 180 m respectively. He wants to fence it with 2 rounds of rope. What is the total cost of the rope if the cost of 1 m of rope is ₹ 15.
3. What is the cost of tiling rectangular pieces of plot 1000m long and 400 m wide at the rate of ₹ 10 per hundred square metres?
4. A wall of length 12 m and breadth 10 m is to be whitewashed having the door of the dimensions 7m by 3m. Find the total cost of whitewashing the wall at the rate of ₹ 12 per m².
5. How many trees can be planted at a distance of 6 metres each around a rectangular plot whose length is 120 m and breadth is 90 m?

Q.6 Find the perimeter and area of the shaded portion in the given figure:



iv) Case based study

1. An excursion trip of students of class 6 of K V Khargone visited the amusement park. The map of the park is given below:



Now answer the following questions: (1 × 4 = 4 marks)

(i) The perimeter of the park is

(a) 26 cm (b) 24 cm (c) 28 cm (d) 30 cm

(ii) The area for the riders is

(a) 10 cm² (b) 15 cm² (c) 20 cm² (d) 26 cm²

(iii) The difference in the areas of riders and parking is

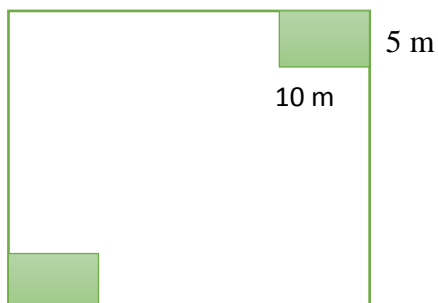
(a) 20 cm² (b) 9 cm² (c) 3 cm² (d) 5 cm²

(iv) The shape of the ticket room is

Rectangle (b) Square (c) Isosceles triangle (d) equilateral triangle

2. A square shaped park ABCD of side 100m has two equal rectangular flower beds each of size 10m X 5m. With the help of the figure given below, answer the following questions:

←----- 100 m ----->



(a) How much area do the two flower beds cover?

(b) Find the area of the park excluding the flower beds.

(c) Find the sum of the perimeter of the two flower beds.

(d) Find the ratio of area of the park to the area of the flower beds.

IV. ANSWERS

i. MCQs

1. (b) 6a cm². (c) 25 cm³. (d) 8 cm⁴. (b) 7cm⁵. (c) 14 cm⁶. (c) 8.4 m
7. (c) 300 m². (b) Rs. 20,000. (c) 576 m². (a) 10 cm

ii. Short answer type questions

- 1.6 m². 60 cm³. 70 cm⁴. 4.4 m⁵. 10 cm⁶. Rs. 3,750. 7.6 m²
8.2 m². 9.15 cm². 10. 2.5 m²

iii. Long answer type questions

1. Athlete B. Rs. 12,600. Rs. 40,000. Rs. 1,188. 5.70 trees
6. Perimeter = 36 cm, Area = 44 cm²

iv Case based study

1. (i) (b) 24 cm (ii) (b) 15 cm² (iii) (b) 9 cm² (iv) (d) equilateral triangle
2. (a) 100 m² (b) 9,900 m² (c) 60 m (d) 100 : 1

CHAPTER TEST 1

M.M.: 20

TIME: 40 MIN.

SECTION A (Each question carries 1 marks)

MCQs:

Q.1 Perimeter of a rectangle is

- (a) $1 \times b$ (b) b^2 (c) l^2 (d) $2 \times (l + b)$

Q.2 Area of a square with side 2.5 cm is

- (a) 5 cm² (b) 10 m² (c) 625 cm² (d) 6.25 cm²

Section B (Each question carries 2 marks)

Q.3 Find the distance travelled by Rubina if she takes four rounds of rectangular park length 45 m and breadth 30 m.

Q.4 Find the perimeter of an equilateral triangle with sides 3.5 cm.

Q.5 The area of a square is 225 cm². Find the measure of each side.

Section C (Each question carries 4 marks)

Q.6 The total cost cultivating a rectangular field at Rs. 1.50 per square metre is Rs 1833. If the breadth of the field is 26 m, find the cost of fencing the field at Rs. 7.50 per metre.

Q.7 Anand's garden is 70 long m wide and is the form a rectangle if he uses three layers of barbed wire to fence the garden, what is the total length of the wire used?

Q.8 Samuel wants to erect some vertical stones along the boundary of his plot at a distance of 10 m each. If the length of the plot is 30 m and the breadth is 15 m how many stones are required?

CHAPTER TEST 2

M.M.: 30

TIME: 60 MIN.

SECTION A (Each question carries 1 marks)

MCQ:

Q.1 Neeta went to a park 20m long and 10 m wide. She took one complete round of it. The distance covered by her is

- (a) 30 m (b) 60 m (c) 20 m (d) 10 m

Q.2 The area of a rectangular sheet of paper is 20 cm^2 . Its length is 5 cm. Find its width

- (a) 1 cm (b) 2 cm (c) 3 cm (d) 4 cm

Section B (Each question carries 2 marks)

Q.3 Find the breadth of the rectangle whose area is 120 cm^2 and length is 15 cm.

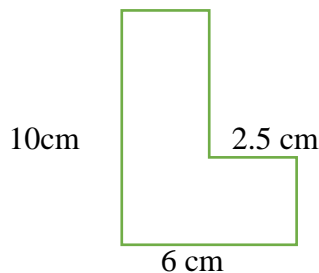
Q.4 An isosceles triangle has a measure of p units for its equal sides and q units for its unequal side. What is its perimeter?

Section C (Each questions carries 3 marks)

Q.5 Find the area of a square with perimeter 28 cm.

Q.6 the cost of fencing a square at the rate of Rs. 30 per metre is Rs. 27000. Find the length of each of each side of the square

Q.7 Find the perimeter of the given figure.



Q.8 In a square shaped park, whose side measures 28 m, a rectangular pond is located at the centre with dimensions 3 m and 2 m. What is the area of the park excluding the pond?

Section D (Each question carries 4 marks)

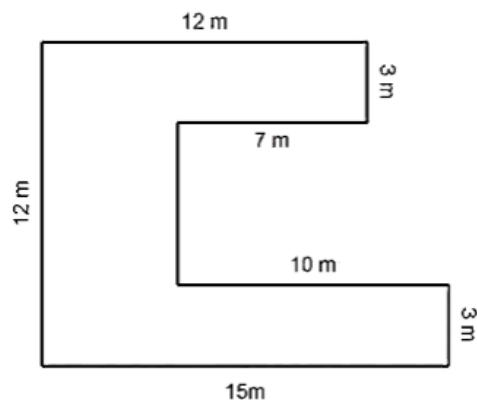
Q.9 How many square cm a glass will be required for windows, which has 10 panes, each measuring 25 cm by 16cm?

Q.10 The perimeter of a rhombus is 56 cm. If each of its side is halved, what will be the new perimeter?

Q.11 Jatin has a garden of the following shape.

He wants to fence his garden with the help of wire.

- (a) Find the length of the wire required to fence it.
(b) Find the cost of fencing the garden, if the cost of 1 m of wire is Rs. 18.
(c) Jatin also wants to lay the grass beds across the whole garden. Find the area of the grass bed needed by Jatin.



- (A) 35 (B) 53 (C) 15 (D) 8

Case study based

If there are 50 mangoes in a box, how will you write the total number of mangoes in terms of the number of boxes? (Use b for the number of boxes.)

Ans $50b$

Short answer type question

1. Cost of a pencil is Rs 6. Find the cost of x pencils.
2. What is the area of a square whose side is m cm?
3. Amulya is 17 years of age now. What was her age 5 years ago?
In similar way, Ritu is x years of age now. What was her age 5 years ago?

Long answer type questions

1 Students went to buy notebooks from the school bookstore. Price of one notebook is 5. Munnu wants to buy 5 notebooks, Appu wants to buy 7 notebooks, Sara wants to buy 4 notebooks and so on. How much money should a student carry when she or he goes to the bookstore to buy notebooks?

Solution ;The letter m stands for the number of notebooks a student wants to buy; m is a variable, which can take any value 1, 2, 3, 4, The total cost of m notebooks is given by the rule :

The total cost in rupees = $5 \times$ number of note books required = $5m$

If Munu wants to buy 5 notebooks, then taking $m = 5$, we say that Munnu should carry 5×5 or 25 with him to the school book store. Appu should carry $7 \times 5 = 35$ rs Sara should carry $4 \times 5 = 20$ rs

III Questions for practice : MCQs

1 What is the rule for making patterns of E ?(use n as variable)

- A) $3x$ B) $3n$ C) $5n$ D) $4x$
- 2 . Which of the following is an equation?
(A) $x + 7$ (B) $2y + 3 = 7$ (C) $2p < 10$ D) $12x$
3. Which of the following represents $6 \times x$
(A) $6x$ (B) $6/x$ (C) $6 + x$ (D) $6 - x$
4. Kanta has p pencils in her box. She puts q more pencils in the box.
The total number of pencils with her are
(A) $p + q$ (B) pq (C) $p - q$ (D) p/q
5. The area of a square having each side x is
(A) $x \times x$ (B) $4x$ (C) $x + x$ (D) $4 + x$
6. If each match box contains 50 matchsticks, the number of matchsticks required to fill n such boxes is
(A) $50 + n$ (B) $50n$ (C) $50 \div n$ (D) $50 - n$
7. The teacher distributes 5 pencils per student. Can you tell how many pencils are needed, given the number of students? (Use s for the number of students.)

- A) $5s$ B) $6x$ C) $5 + x$ D) $5/s$

8. Cadets are marching in a parade. There are 8 cadets in a row. What is the rule which gives the number of cadets, given the number of rows? (Use x for the number of rows.)

- A) $8x$ B) $8+x$ C) $8/x$ D) $x/8$

9. Sarita says that she has 10 more marbles in her collection than Ameena. If Ameena has x marbles, then Sarita has

- A) $10x$ B) $10+x$ C) $10/x$ D) 20

10. What is the rule for making patterns of T (use m as variable)

- A) $2m$ B) $3m$ C) $4m$ D) t

SHORT ANSWER TYPE

1. A bird flies 1 kilometer in one minute. Can you express the distance covered by the bird in terms of its flying time in minutes? (Use t for flying time in minutes.)
2. Give an expression for 13 subtracted from thrice of a number.
3. If x takes the value 2, then what is the value of $x + 10$?
4. If 1 kg of potatoes are bought for Rs 70. Cost of p kg of potatoes (in Rs)
5. Namita has p pencils in her box. She puts q more pencils in the box. What is the total pencils she has ?
6. Megha's age (in years) is 2 more than 5 times her daughter's age. If daughter's age is x years .then what is the age of Megha ?

LONG ANSWER TYPE

1. Anagha, Sushant and Faizal are climbing the steps to a hill top. Anagha is at the step p . Sushant is 10 steps ahead and Faizal is 6 steps behind Anagha. Where are Sushant and Faizal? The total number of steps to the hill top is 3 steps less than 8 times what Anagha has reached. Express the total number of steps using p .
2. Mother has made laddus. She gives some laddus to guests and family members; still 5 laddus remain. If the number of laddus mother gave away is l , how many laddus did she make?
3. Oranges are to be transferred from larger boxes into smaller boxes. When a large box is emptied, the oranges from it fill two smaller boxes and still 10 oranges remain outside. If the number of oranges in a small box are taken to be x , what is the number of oranges in the larger box?
4. Students went to buy notebooks from the school bookstore. Price of one notebook is 5. Munnu wants to buy 5 notebooks, Appu wants to buy 7 notebooks, Sara wants to buy 4 notebooks and so on. How much money should a student carry when she or he goes to the bookstore to buy notebooks?

Case study based

1 For the Republic Day celebration in the school, children are going to perform mass drill in the presence of the chief guest. They stand 10 in a row (Fig 11.4). How many children can there be in the drill?

2 Mother has made laddus. She gives some laddus to guests and family members; still 5 laddus remain. If the number of laddus mother gave away is l , how many laddus did she make?

3. Oranges are to be transferred from larger boxes into smaller boxes. When a large box is emptied, the oranges from it fill two smaller boxes and still 10 oranges remain outside. If the number of oranges in a small box are taken to be x , what is the number of oranges in the larger box?

ANSWERS

MCQs

1)C 2)B 3)A 4)A 5) A 6)B 7)A 8)A 9)B 10)A

SHORT ANSWER TYPE

1)t 2) $3x - 13$ 3)12 4)70p Rs 5)p+q 6) $5x+2$ years 7)

LONG ANSWER TYPE

1) $8p - 3$ 2)l+5 laddus 3) $2x+10$ 4) 5 n Rs

Case study based 1) 10 n 2) l+5 3) $2x+10$

CHAPTER TEST

MM 20

Time 30 min

General instructions: Total questions are 14(10 MCQs ,1 mark each,3 short answer type questions ,2 marks each and one case study based question of 4 marks)In questions 1 to 10, out of the four given options, only one is correct. Write the correct answer.

1. What is the rule for making patterns of V ?(use n as variable)

A) $2x$ B) $3x$ C) $3n$ D) $2n$

2. What is the rule for making patterns of \square ? (use n as variable)

A) $3n$ B) $5n$ C) $3x$ D) cn

3. Sarita says that she has 10 more marbles in her collection than Ameena. If Ameena has x marbles, then Sarita has

A) $10x$ B) $10+x$ C) $10/x$ D) 20

4. If each match box contains 50 matchsticks, the number of matchsticks required to fill n such boxes is

(B) $50 + n$ (B) $50n$ (C) $50 \div n$ (D) $50 - n$

5. Kanta has p pencils in her box. She puts q more pencils in the box. The total number of pencils with her are

(A) $p + q$ (B) pq (C) $p - q$ (D) p/q

6. The area of a square having each side x is

(A) $x \times x$ (B) $4x$ (C) $x + x$ (D) $4 + x$

7. The teacher distributes 5 pencils per student. Can you tell how many pencils are needed, given the number of students? (Use s for the number of students.)

- A) $5s$ B) $6x$ C) $5 + x$ D) $5/s$

8. What is the rule for making patterns of T (use m as variable)

- A) $2m$ B) $3m$ C) $4m$ D) t

9. Cadets are marching in a parade. There are 8 cadets in a row. What is the rule which gives the number of cadets, given the number of rows? (Use x for the number of rows.)

- A) $8x$ B) $8+x$ C) $8/x$ D) $x/8$

10. Which of the following is an equation?

- (A) $x + 7$ (B) $2y + 3 = 7$ (C) $2p < 10$ (D) $12x$

In questions 11 to 13, state the answer in very short (one word)

11. Give an expression for 13 subtracted from thrice of a number.

12. If x takes the value 2, then what is the value of $x + 10$?

13. Namita has p pencils in her box. She puts q more pencils in the box. What is the total pencils she has ?

CHAPTER TEST 2

MM 30

TIME 40 MIN

General instructions: 1. All questions are compulsory. 2. Total questions are 18

3. 10 MCQs, 1 mark each, 5 short answer type questions, 2 marks each, two long answer type questions of 3 marks each and one case study based question of 4 marks. In questions 1 to 10, out of the four given options, only one is correct. Write the correct answer.

1. What is the rule for making patterns of V ? (use n as variable)

- A) $2x$ B) $3x$ C) $3n$ D) $2n$

2. What is the rule for making patterns of \square ? (use n as variable)

- A) $3n$ B) $5n$ C) $3x$ D) cn

3. Sarita says that she has 10 more marbles in her collection than Ameena. If Ameena has x marbles, then Sarita has

- A) $10x$ B) $10+x$ C) $10/x$ D) 20

4. If each match box contains 50 matchsticks, the number of matchsticks required to fill n such boxes is

- (C) $50 + n$ (B) $50n$ (C) $50 \div n$ (D) $50 - n$

5. Kanta has p pencils in her box. She puts q more pencils in the box. The total number of pencils with her are

- (A) $p + q$ (B) pq (C) $p - q$ (D) p/q

6. The area of a square having each side x is

- (A) $x \times x$ (B) $4x$ (C) $x + x$ (D) $4 + x$

7. The teacher distributes 5 pencils per student. Can you tell how many pencils are needed, given the number of students? (Use s for the number of students.)

- A) $5s$ B) $6x$ C) $5 + x$ D) $5/s$

8. What is the rule for making patterns of T (use m as variable)

A) 2m

B) 3m

C) 4m

D) t

9. Cadets are marching in a parade. There are 8 cadets in a row. What is the rule which gives the number of cadets, given the number of rows? (Use x for the number of rows.)

A) $8x$

B) $8+X$

C) $8/x$

D) $X/8$

10. Which of the following is an equation?

(A) $x + 7$

(B) $2y + 3 = 7$

(C) $2p < 10$

(D) $12x$

In questions 11 to 15, state the answer in very short (one word)

11. Give an expression for 13 subtracted from thrice of a number.

12. If x takes the value 2, then what is the value of $x + 10$?

13. Namita has p pencils in her box. She puts q more pencils in the box. What is the total pencils she has ?

14. A bird flies 1 kilometer in one minute. Can you express the distance covered by the bird in terms of its flying time in minutes? (Use t for flying time in minutes)

15. If 1 kg of potatoes are bought for Rs 70. Cost of p kg of potatoes (in Rs)

In question no. 16 and 17, change the statements, converting expressions into statements in ordinary language.

Q 16 Cost of a pencil is Rs x. A pen costs Rs 6x.

Q 17 Manisha is z years old. Her uncle is 5z years old and her aunt is $(5z - 4)$ years old.

RATIO AND PROPORTION

Key Points

There are two ways of comparison:

(i) By taking difference

(ii) By division

The comparison by division is called the ratio. In this way, we see how many times one quantity is to the other quantity

Ratio

If we compare two quantities in terms of 'how many times', then this comparison is known as the ratio. Ratio is denoted by using the symbol ':'

For comparison by ratio, the two quantities must be in the same units. If they are not, they must be expressed in the same units before the ratio is taken

Equivalent Ratio

A ratio equivalent to a given ratio can be obtained by multiplying or dividing the numerator and denominator by the same number. Thus, few ratios equivalent to 2 : 3 are 4 : 6, 6 : 9, 8 : 12, etc.

The orders in which the quantities are taken to express their ratio is important. Note that the ratio 2 : 3 is different from 3 : 2.

A ratio can be expressed in its lowest form. For example, ratio 60 : 24 is in the form of a fraction. In its lowest form $\frac{60}{24} = \frac{5}{2} = 5 : 2$. Thus in its lowest form ratio 60:24 is treated as 5 : 2.

Proportion

If two ratios are equal we say that they are in proportion and use the symbol to equate the two ratios.

For example, 2 : 4 = 60 : 120

we write 2 : 4 :: 60 : 120

and say that 2, 4, 60 and 120 are in proportion.

Again,

2 : 5 ≠ 60 : 15

We say that 2, 5, 60 and 15 are not in proportion.

So, if two ratios are not equal, then we say that they are not in proportion.

SOLVED EXAMPLES

Find the ratio of the first quantity to the second.

(1) 25 beads, 40 beads (2) Rs 40, Rs 120 (3) 25 beads : 40 beads

1) $25 \div 5 = 5$ $40 \div 5 = 8$

= 5 : 8 (HCF of 25 and 40 = 5)

(2) 40 rupees : 120 rupees = $40 \div 40$

$40 \div 40 = 1$ $120 \div 40 = 3$

= 1 : 3 (HCF of 40 and 120 = 40)

Ques2 .Reema has 24 notebooks and 18 books. Find the ratio of notebooks to books.

Sol. Number of notebooks = 24 Number of books = 18

Ratio of notebooks to books = Number of notebooks : Number of books

= 24 : 18

= $24 \div 6$ $18 \div 6$

(HCF of 24 and 18 = 6)

Thus, the ratio of notebooks to books is 4:3

Ques3 30 cricket players and 20 kho-kho players are training on a field. What is the ratio of cricket players to the total number of players?

Number of cricket players = 30

Number of kho-kho players = 20

\therefore Total no of player = Number of cricket players + Number of kho-kho players = 30 + 20 = 50

Ratio of cricket players to the total no of players = No of cricket players : Total no of player 50
= 30:50, 50:10

(HCF of 30 and 50 = 10)

Answer = 3:5

ASSIGNMENT

MCQ

Q1. Distances travelled by Hamid and Akhtar in an hour is 9 km and 12 km. Find the ratio of the speed of Hamid to the speed of Akhtar.

a) 3:4 b) 4:5 c) 2:3 d) 3:4

Q2. Find the ratio of the following 30 minutes to 1.5 hours

a) 3:4 b) 1:3 c) 1: 2 d) 2:3

Q3. Find the ratio of the following 40 cm to 1.5 m

a) 3:4 b) 4:15 c) 4: 7 d) 3:5

Q4 Out of 30 students in a class, 6 like football, 12 like cricket and remaining like tennis. Find the ratio of number of students liking football to the number of students liking tennis.

a) 1:2 b) 3:4 c) 2:3 d) 1:3

Q5. There are 20 girls and 15 boys in a class. What is the ratio of the number of girls to the total number of students in the class?

a) 4:5 b) 4:9 c) 5:7 d) 3: 5

Short Answer Type Question

Q1. Find the missing number in the box in the following proportion:

 : 5 :: 12 : 60

Q2. A picture is 60cm wide and 1.8m long. Find the ratio of its width to its perimeter in lowest form

Q3. The greatest ratio among the ratios 2 : 3, 4 : 5, 5 : 6 and 6 : 7 is

Q4 Ratio of 5 paise to 25 paise is the same as the ratio of 20 paise to

Q5. If 3 : 2 is equivalent, to x : 4, then find x

Q6. The comparison of two numbers quantities by division is known as the

Q7 The lowest form of 25 : 75 is

Q8 A is a statement that two ratios are equal. [proportion/equation]

Q9. The ratio 30 : 45, in its lowest term is

Q10. In a class, there are 30 girls and 20 boys. [Number of girls] : [Number of boys] =

Long Answer Type

Q1. Express each of the following in the language of ratios:

(i) In a class, the number of girls in the merit list of the board examination is two times that of boys.

(ii) The number of students passing mathematics test is $\frac{2}{3}$ of the number that appeared.

Q2. Express the following ratios in language of daily life:

(i) The ratio of the number of bad pencils to that of good pencils produced in a factory is 1: 9.

(ii) In India, the ratio of the number of villages to that of cities is about 2000: 1.

Q3 The number of boys and girls in a school are 240 and 180 respectively. Express the ratio of the number of boys to that of the girls in the simplest form.

Q4 Avinash works as a lecturer and earns Rs 12000 per month. His wife who is a doctor earns Rs 15000 per month. Find the following ratios:

(i) Avinash's income to the income of his wife. (ii) Avinash's income to their total income

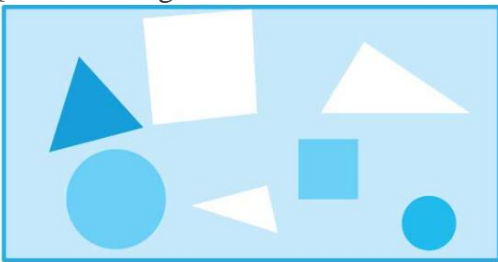
Q5 . Of the 72 persons working in an office, 28 are men and the remaining are women. Find the ratio of the number of:

(i) men to that of women, (ii) men to the total number of persons (iii) persons to that of women.

Q6. The length of a steel tape for measurements of buildings is 10 m and its width is 2.4 cm. What is the ratio of its length to width?

Case Study Question

Q1. See the figure and find the ratio of



(i) The number of triangles to the number of circles inside the rectangle.

(ii) Number of squares to all the figures inside the rectangle.

(iii) The number of circles to all the figures inside the rectangle.

Q2. In a college, out of 4320 students, 2300 are girls. Find the ratio of

(a) Number of girls to the total number of students.

(b) The number of boys to the number of girls.

(c) The number of boys to the total number of students.

PRACTICE TEST-1

General Instructions: Section-A contains 4 questions of 1 mark each. Section –B contains 3 questions of 2 marks each. Section-C contains 2 questions of 3 marks each. Section-D contains 1 question of 4 marks

M.Marks:20

Time: 45 min

SECTION-A

Q1	The ratio of 150 g to 2 kg is a) 75 : 1 (b) 40 : 3 (c) 3 : 40 (d) 3 : 200	1
Q2	The ratio of number of girls to the number of boys in a class is 5 : 4. If there are 25 girls in the class, then the number of boys in the class is (a) 15 (b) 20 (c) 30 (d) 40	1
Q3	If a, b, c and d are in proportion, then a) $ab = cd$ (b) $ad = bc$ (c) $ac = bd$ (d) none of these	1
Q4	The ratio 384 : 480 in the simplest form is (a) 2 : 5 (b) 3 : 5 (c) 5 : 4 (d) 4 : 5	1


SECTION-B

Q5	If 7 pencils cost ₹35, then find the cost of one dozen pencils .	2
Q6	Out of 45 students in a class, 20 students are boys and the remaining are girls. Find the ratio of boys to girls and girls to boys.	2
Q7	The ratio of Julie's money to Pradeep's money is 4 : 6. If Julie has Rs. 500, how much money does Pradeep have?	2

SECTION-C

Q8	A rectangular field is 80 m long and 60 m wide. Find the ratio of its length to perimeter.	3
Q9	The ratio of the number of apples to the oranges in a shop is 8 : 7. If there are 63 oranges, how many apples are there in the shop?	3

SECTION-D

Q10	A machine manufactures 75 cycle parts in 5 hours.  i) How many parts will it manufacture in 45 hours? ii) In how many hours will it produce 150 parts?	
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PRACTICE TEST-2**Mathematics****Class-VI**

General Instructions: Section-A contains 5 questions of 1 mark each. Section –B contains 6 questions of 2 marks each. Section-C contains 3 questions of 3 marks each. Section-D contains 1 question of 4 marks

M.Marks:30

Time: 90 min

SECTION-A

Q1	Find the missing term of the proportion whose three terms are mentioned below. 8, ____, 32, 12 a) b) c) d)	1
Q2	Find the simplest form of the given ratio 70 : 105. a) B) c) d)	1
Q3	The ratio of 120 g to 2 kg is a) 3: 5 (b) 40 : 3(c) 3 : 40(d) 3 : 200	1
Q4	The ratio 384 : 450 in the simplest form is (a) 2 : 5(b) 3 : 5(c) 5 : 4(d) 4 : 5	1
Q5	Find the ratio of the following 30 minutes to 1.5 hours a) 3:4 b) 1:3 c) 1: 2 d) 2:3	1

SECTION-B

Q6	The weight of 9 similar books is 12 kg. What is the weight of 45 such books?	2
Q7	Find the fourth term of the proportion whose first three terms are mentioned below. 3, 2, 9	2
Q8	Find the ratio of 2 years to 6 months.	2
Q9	The greatest ratio among the ratios 2 : 3, 4 : 5, 5 : 6 and 6 : 7 is	2
Q10	If 7 pencils cost ₹35, then find the cost of 20 pencils	2
Q11	The ratio of Smith's money to Paul's money is 4 : 6. If Smith has Rs. 200, how much money does Paul have?	2

SECTION-C

Q12	The cost of 19 tables is Rs. 27854. How many tables can be bought for Rs. 51310.	3
Q13	A motorbike travels 260 km in 5 hours. How far it will travel in 15 hours 30 minutes?	3

Q14	Q4 Avinash works as a lecturer and earns Rs 12000 per month. His wife who is a doctor earns Rs 15000 per month. Find the following ratios: (i) Avinash's income to the income of his wife. (ii) Avinash's income to their total income	3
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SECTION-D

Q15	Q5 . Of the 72 persons working in an office, 28 are men and the remaining are women. Find the ratio of the number of: (i) men to that of women, (ii) men to the total number of persons (iii) persons to that of women.	4
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ANSWERS OF ASSIGNMENT QUESTIONS

MCQ	ANS	SAQ	ANSWERS	LAQ	ANSWER
Q1	d	Q1	X= 1	Q1	2:1
Q2	b	Q2	1:8	Q2	Do it
Q3	b	Q3	6:7	Q3	4:3
Q4	a	Q4	100	Q4	(i) 4:5 (ii) 4:9
Q5	a	Q5	6	Q5	(i) 7:11 (ii) 7:18 (iii) 18:11
		Q6	Ratio	Q6	1250:3
		Q7	1:3		
		Q8	Proportion		
		Q9	2:3		
		Q10	3:2		