

CHAPTER 1 REAL NUMBERS

Graded worksheet - 1

Student's name :	Class: 10, section:	Date:
Duration : 30 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam: 6 marks

Q1.	State Fundamental Theorem of Arithmetic.	1 mark
Q2.	If $p^2 = \frac{21}{140}$, then p is a/an a) whole number c) rational number b) integer d) irrational number	1mark
Q3.	Which of the following is not an irrational number? a) π c) $\frac{\sqrt{5}}{\sqrt{20}}$ b) 3.070070007..... d) $\sqrt[3]{0.4}$	1 mark
Q4.	Assertion (A) : $2 + \sqrt{3}$ is an irrational number. Reason (R) : The sum of a non-zero rational number and an irrational number is always an irrational number. Choose the correct options given below : (a)Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false.	1 mark

	(d) Assertion (A) is false but Reason (R) is true.	
Q5.	If two positive integers a and b are written as $a = x^3 y^2$ and $b = xy^3$, x, y are prime numbers, then find LCM(a,b) and HCF (a, b).	2 marks
Q6.	Given that $\text{HCF}(36, a) = 9$, and $\text{LCM}(36, a) = 108$, then find the value of a.	2 marks
Q7.	A school plans to seat 252 girls and 198 boys in equal number of rows. What is the maximum number of students that can sit in each row if only one type of student is allowed in a row?	2 marks
Q8.	A student wrote a fraction with denominator $7 \times 13 \times 11^2$ and said its decimal expansion would terminate. Do you agree? Why or why not?	2 marks
Q9.	A factory produces whistles every 36 minutes, horns every 48 minutes, and sirens every 60 minutes. If all three are operated together at 10 a.m., at what time will they next operate together again? How many times will each operate till then?	3 marks
Space for rough →		

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Answers Graded worksheet 1:

1. For correct Statement
2. d) irrational number
3. c) $\frac{\sqrt{5}}{\sqrt{20}}$
4. a) Both Assertion and reason are true and Reason is the correct explanation of the assertion
5. $\text{LCM} = x^3 y^3$, $\text{HCF} = xy^2$
6. $a = 27$
7. $\text{HCF}(252, 198) = 18$, Hence Maximum students per row = 18
8. Incorrect, since denominator contains prime factor other than 2 and 5
9. $\text{LCM}(36, 48, 60) = 720$ minutes
10 pm
Whistle will operate 20 times
Horns will operate 15 times
Sirens will operate 12 times

CHAPTER 1 REAL NUMBERS

Graded worksheet 2

Student's name :	Class: 10, section:	Date:
Duration : 30 Min	Max marks : 17	Estimated weightage of chapter in CBSE exam: 6 marks

Q1.	The decimal expansion of the rational number $14587/1250$ will: a) terminate after 2 decimal places b) terminate after 3 decimal places c) terminate after 4 decimal places d) non-terminate but repeating	1 mark
Q2.	Explain why $5 \times 7 \times 11 \times 13 + 13$ is a composite number.	1mark
Q3.	Check whether 15^n can end with the digit 0 for any natural number n.	2 marks
Q4.	If the HCF of 55 and 154 is expressible in the form $55m - 154$, then find the value of m.	2 marks
Q5.	Prove that $3 - 2\sqrt{5}$ is an irrational number. It is given that $\sqrt{5}$ is an irrational number.	2 marks
Q6.	Prove that $\sqrt{3}$ is an irrational number.	3 marks
Q7.	Amar, Akbar and Anthony are playing a game. Amar climbs 5 stairs and gets down 2 stairs in one turn. Akbar goes up by 7 stairs and comes down by 2 stairs every time. Anthony goes 10 stairs up and 3 stairs down each time. Doing this they have to reach to the nearest point of 100th stairs and they will stop once they find it impossible to go forward. They can not cross 100th stair in anyway.	6 marks

	(i) Who reaches the nearest point? (ii) How many times can they meet in between on same stair? (iii) Who takes least number of steps to reach near hundred? (iv) What is the first stair where any two out of three will meet together?	
Space for rough work →		

Answers Graded worksheet 2

1. c) terminates after four decimal places
2. $5 \times 7 \times 11 \times 13 + 13 = 13(5 \times 7 \times 11 + 1) = 13 \times 386 = 13 \times 2 \times 193$, since it have more two factors
3. No, because 2 is not present in prime factors of 15^n
4. $m=3$
5. for correct proof
6. for correct proof
7. (i) Amar
(ii) they will not meet
(iii) Anthony
(iv) 15th

CHAPTER 2 POLYNOMIALS

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 30 Min.	Max marks : 15	Estimated weightage of chapter in CBSE exam: 4 to 6 marks

Q1.	The value of k for which (-4) is a zero of the polynomial $x^2-x-(2k+2)$ is (a)3 (b)9 (c)-3 (d) -9	1mark
Q2.	Assertion (A): The degree of a polynomial is the highest power of variable involved. Reason (R) : The number of terms in a polynomial may be (n+1) , if the highest power of the variable is n. Choose the correct options given below : (a)Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true.	1mark
Q3.	If one of the zeroes of the polynomial $f(x)=(k^2+4)x^2+13x+4k$ is the reciprocal of the other then k is equal to (a)2 (b)1 (c) -1 (d) -2	1 mark
Q4.	If the zeroes of the polynomial $ax^2 + bx + \frac{2a}{b}$ are the reciprocal of each other, then the value of b is (a) -2 (b) $-\frac{1}{2}$ (c) $+\frac{1}{2}$ (d) 2	1 mark
Q5.	Zeroes of the polynomial $P(x)=x^2 - 3\sqrt{2}x + 4$ is	

	(a) $2 \text{ \& } \sqrt{2}$ (b) $2\sqrt{2} \text{ \& } \sqrt{2}$ (c) $4\sqrt{2} \text{ \& } -\sqrt{2}$ (d) $-\sqrt{2} \text{ \& } 2$	1 mark
Q6.	If α and β are the zeroes of the quadratic polynomial $p(x) = 4x^2 + 3x + 7$, then find the value of $\frac{1}{\alpha} + \frac{1}{\beta}$	2 marks
Q7.	If the product of zeroes of the quadratic polynomial $p(x) = (k-2)x^2 - 4x + k$ is 3. Then find the value of the k?	2 marks
Q8.	Find the Zeroes of polynomial $\sqrt{2}x^2 - 3x - 2\sqrt{2}$ and verify the relation between the zeros and the coefficients.	3 marks
Q9.	If α and β are the zero of the quadratic polynomial $f(x) = x^2 - 1$, find a quadratic polynomial whose zeroes are $\frac{2\alpha}{\beta}$ and $\frac{2\beta}{\alpha}$.	3 marks
Space for rough work →		

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Answers Graded worksheet 1

1.b) 9

2. b)

3. a) 2

4. d) 2

5.b) $2\sqrt{2}$ and $\sqrt{2}$

6. $-3/7$

7. $k = 3$

8. $2\sqrt{2}$ and $-1/\sqrt{2}$

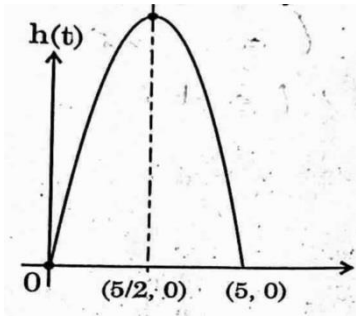
9. $x^2 + 4x + 4$

CHAPTER 2 POLYNOMIALS

Graded worksheet 2

Student's name :	Class: 10, section:	Date:
Duration : 30 Min	Max marks : 17	Estimated weightage of chapter in CBSE exam: 4 to 6 marks

Q1.	If α and β ($\alpha > \beta$) are the zeros of the polynomial $-x^2 + 8x + 9$, then $(\alpha - \beta)$ is (a) -10 (b) +10 (c) ± 10 (d) 8	1 mark
Q2.	The zeros of the quadratic polynomial $P(x) = 2x^2 - 3x - 9$ are	1 mark

	(a) $3 \& -\frac{3}{2}$ (b) $-3 \& -\frac{3}{2}$ (c) $-3 \& \frac{3}{2}$ (d) $3 \& \frac{3}{2}$	
Q3.	If α and β are the zeros of the polynomial $3x^2+6x+k$ such $\alpha + \beta + \alpha\beta = -\frac{2}{3}$, then the value of k is equal to (a) -8 (b) 8 (c) -4 (d) 4	1 mark
Q4.	If α and β are the zeroes of the polynomial $p(x) = x^2 - p(x+1) - q$, then find the value of $(\alpha+1)(\beta+1)$	2 marks
Q5.	Find the Zeroes of the polynomial $P(x) = 3x^2 - 4x - 4$. Hence write a polynomial whose each of the zeros is 3 more than the zeros of the P(x).	3 marks
Q6.	If α and β are the Zeroes quadratic polynomial $f(x)=6x^2+x-2$ then find the value of a) $\alpha\beta^2+\beta\alpha^2$ b) $\alpha^3+\beta^3$	3 marks
Q7.	A ball is thrown in air so that t-seconds after it is thrown, its height h meter above its starting point is given by the polynomial $h=25t-5t^2$ Observe the graph of the polynomial and Answer the following questions:  (i) Write the zeroes of the polynomial. (ii) Find the maximum height achieved by the ball. (iii) After throwing upward, how much time did the ball take to reach the height of 30 meters? (iv) Find two different values of t when the height of the ball is 20 meters?	4 marks (1+1+2+2)
Space for		

rough

work

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Answers Graded worksheet 2

1. d). 10

2. a) 3 and $-\frac{3}{2}$

3. d) 4

4. (1-q)

5. 2 and $-\frac{2}{3}$, $3x^2 - 22x + 35$

6. a) $\frac{1}{18}$

b) $-\frac{37}{216}$

7. (i) The zeros are **0 seconds** and **5 seconds**.

(ii) The equation $h(t)=25t-5t^2$ is a **quadratic** (parabola opening downward).

The maximum occurs at the vertex: use $t=-b/2a$.

Here $a=-5$ and $b=25$, so $t = 2.5$.

Now put in $h(t)=25t-5t^2$, $h= 31.25\text{m}$

Maximum height is **31.25 metres** at **2.5 seconds**

(iii) put $25t-5t^2=20$ and solve

The ball reaches 20 metres at **1 seconds** (on the way up) and **4 seconds** (on the way down)

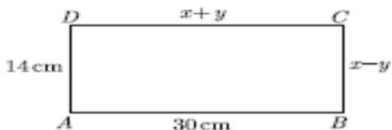
(iv) Put $h(t)=25t-5t^2=30$ and solve

CHAPTER 3 PAIR OF LINEAR EQUATION IN TWO VARIABLES

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 30 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam: 5 to 6 marks

Q1.	If $x=1$ and $y=2$ is a solution of the pair of linear equations $2x-3y + a=0$ and $2x+3y-b=0$, then: a) $a=2b$ c) $a+2b=0$ b) $2a=b$ d) $2a+b=0$	1 mark
Q2.	For which value(s) of k , will the lines represented by the following pair of linear equations be parallel $3x-y-5=0$ and $6x-2y=k$ a) All real value c) All real values except 10 b) Only 10 d) All natural value	1mark
Q3.	Assertion: $x + y - 4 = 0$ and $2x + ky - 3 = 0$ has no solution if $k = 2$. Reason : $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are consistent if $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).	1 mark

	(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A) (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true	
Q4.	Sum of two numbers is 105 and their difference is 40. Find the numbers.	2 marks
Q5.	In Figure, ABCD is a rectangle. Find the values of x and y 	2 marks
Q6.	The sum of the numerator and denominator of a fraction is 12. If 1 is added to both the numerator and the denominator the fraction becomes $\frac{3}{4}$. Find the fraction.	2 marks
Q7.	Solve the equations graphically: $2x + y = 2;$ $2y - x = 4$ What is the area of the triangle formed by the two given lines and the line $y = 0$?	3 marks
Q8.	Determine the values of m and n so that the following system of linear equation have infinite number of solutions : $(2m-1)x + 3y - 5 = 0$ $3x + (n-1)y - 2 = 0$	3 marks
Space for rough work		

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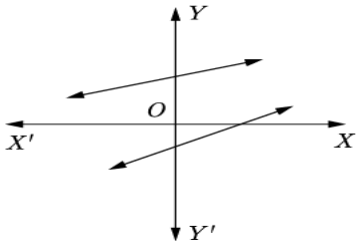
Answers Graded worksheet 1: linear equations in two variables

1. b) $2a=b$
2. c) All real values except 10
3. (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A)
4. $x=75, y=30$
5. $x=22, y=8$
6. fraction = $\frac{5}{7}$
7. $X=0, y=2$ area = 5 sq. units
8. $m=\frac{17}{4}, n=\frac{11}{5}$

Chapter- 3 PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

Graded worksheet 2

Student's name :	Class: 10, section:	Date:
Duration : 30 Mins	Max marks : 15	Estimated weightage of chapter in CBSE exam: 5 to 7_ marks

Q1.	The system of equations $y+a=0$ and $2x=b$ has a). no solution b). $(-a, b/2)$ as its solution c). $(b/2, -a)$ as its solution d). Infinite solutions	1 marks
Q2.	In the given figure, graphs of two linear equations are shown. The pair of these linear equations is:  a). consistent with unique solution. b). consistent with infinitely many solutions. c). inconsistent. d). inconsistent but can be made consistent by extending these lines.	1 mark
Q3.	If $2x+y = 13$ and $4x-y=17$, find $(x-y)$	2 marks
Q4.	Solve for x and y : $99x + 101y = 499$ $101x + 99y = 501$	3 marks

Q5.	Solve graphically : $2x - 3y = 13=0$ and $3x-2y+12=0$ Also write the coordinates of triangle formed between the lines and x-axis.	3 marks
Q5.	The sum of the digits of a two-digit number is 12. The number obtained by interchanging the two digits exceeds the given number by 18. Find the number.	5 marks
Space for rough work →		

Answers Graded worksheet 2:

1. c) $(b/2, -a)$ as its solution
2. These two lines are not parallel and will cut on a point. Thus pair of these linear equations is consistent with unique solution. Thus (a) is correct option.
3. $x=5$ and $y=3$
4. $x=3, y=2$
5. $(1,0), (8,0), (4, -2)$
6. the number is 57

CHAPTER 4 QUADRATIC EQUATIONS

Graded worksheet 1

Student's name : _____	Class: 10, section:	Date:
Duration : 30 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam: 5 to 7 marks

Q1.	Which of the following equations has 2 as a root? (a) $x^2 - 4x + 5 = 0$ (b) $x^2 + 3x - 12 = 0$ (c) $2x^2 - 7x + 6 = 0$ (d) $3x^2 - 6x - 2 = 0$	1mark
Q2.	Choose the correct options given below : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion: $(2x - 1)^2 - 4x^2 + 5 = 0$ is not a quadratic equation. Reason: An equation of the form $ax^2 + bx + c = 0$, $a \neq 0$, where $a, b, c \in \mathbb{R}$ is called a quadratic equation.	1mark
Q3.	If the roots of equation $ax^2 + bx + c = 0$ are real and equal, then which of the following relation is true? a) $a = b^2/c$ b) $b^2 = ac$ c) $ac = b^2/4$ d) $c = b^2/a$	1 mark
Q4.	Find the nature of the roots of quadratic equation $2x^2 - 4x + 3 = 0$.	2 marks

Q5.	Sam and Tom together have 45 marbles. Both lost 5 marbles each, and the product of the number of marbles they now have 124. Find out how many marbles they had to start with.	3marks
Q6.	CASE-STUDY A charity trust plans to build a prayer hall with area 300 m². If the length is one meter more than twice its breadth, then answer the following questions: a) What is the quadratic equation formed? b) What are the dimensions of the prayer hall?	2+2 marks
Q7.	Find the discriminant of the equation $3x^2 - 2x + \frac{1}{3} = 0$ and hence find nature of its roots. Find them if they are real.	3 marks
Space for rough work →		

1. (c)

2. (a)

3. (c)

4. $D < 0$, no real roots

5. either 36 & 9 or 9 & 36

6. a) $2x^2 + x - 300 = 0$

b) $12\text{m} \times 25\text{m}$

7. 0, roots are $\frac{1}{3}, \frac{1}{3}$

CHAPTER 4 QUADRATIC EQUATIONS

Graded worksheet 2

Student's name :	Class: 10, section:	Date:
Duration : 30 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam:5 to 7 marks

Q1.	If one root of the quadratic equation $ax^2 + bx + c = 0$ is the reciprocal of the other, then (a) $b = c$ (b) $a = b$ (c) $ac = 1$ (d) $a = c$	1 mark
Q2.	ASSERTION: The roots of the quadratic equation $x^2 + 2x + 2 = 0$ are imaginary. REASON : If discriminant $D = b^2 - 4ac < 0$ then the roots of quadratic equation $ax^2 + bx + c = 0$ are imaginary. (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A). (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true.	1 mark
Q3.	Find the value of k for which the roots of the quadratic equation $2x^2 + kx + 8 = 0$ will have equal roots?	2 marks
Q4.	Find the value of p for which one root of the quadratic equation $px^2 - 14x + 8 = 0$ is 6 times the other.	3 marks
Q5.	Two water taps together can fill a tank in $15/8$ hours. The tap with longer diameter takes 2 hours less than the tap with smaller one to fill the tank separately. Find the time in which each tap can fill the tank separately.	3 marks
Q6	A pole has to be erected at a point on the boundary of a circular park of diameter 13 metres in such a way that the differences of its distances from two diametrically opposite fixed gates A and B on the boundary is 7 metres. Is it possible to do so? If yes, at what distances from the two gates should the pole be erected?	5 marks
Space for rough work →		

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Answers Graded worksheet 2:

1. option (d) is correct option.
2. (a) is correct option.
3. $k = \pm 8$
4. $p=3$
5. rate of first pipe = 5 hours, rate of second pipe = 3 hours
6. The pole has to be erected on the boundary of the park at a distance of 5 m from the gate B and 12 m from the gate A.

CHAPTER 5 ARITHMETIC PROGRESSION

Graded worksheet 1

Student's name:	Class: X ,Section:	Date:
Duration:30Min	Max marks: 17	Estimated weightage of chapter in CBSE exam: 7 to 8 marks

Q1.	The missing terms in the AP ;-- ,13,-- ,3 are: a). 11 and 9 b). 17 and 9 c). 18 and 9 d). 18 and 8	1 mark
Q2.	The 21 st term of an AP whose first two terms are –3 and 4 is a). 17 b). 137 c). 143 d). -143	1 mark
Q3.	Assertion: let the positive numbers a ,b, c be in AP, then $1/bc$, $1/ac$, $1/ab$ are also in AP Reason : if each term of an AP is divided by abc, then the resulting sequence is also in AP. (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A) (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true	1 mark
Q4.	Which term of the AP 72, 63, 54.....is 0?	2 marks
Q5.	Find the value of m so that $m+2$, $4m-6$, and $3m-2$ are three consecutive terms of an AP	3 marks
Q6	If the sum of first m terms of an AP is same as the sum of its first n terms, then Show that the sum of its first (m+n) terms is 0.	3 marks
Q7	India is competitive manufacturing location due to the low cost of manpower and strong technical and engineering capabilities contribution to higher quality production runs. The production of TV sets in a factory increases uniformly by a fixed number every year. It produced 16000 sets in 6 th year and 22600 in 9 th year.	1+1+2+2

	Based on the above information, answer the following questions: - Find the production during 8th year. - Find the production during first 3 years. - In which year, the production is Rs. 29,200 - Find the difference of the production during 7th year and 4th year.	
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Answers of graded worksheet 1.:

Q1. (d) 18,8

Q2. (b) 137

Q3. (a)

Q4. 9th term of AP is zero

Q5. $m=3$

Q6. prove it

Q7. (i) Production during 8th year is Rs 20400

(ii) 3rd year production is Rs 21600

(iii) $n=12$, 12th year

(iv) $a_7 - a_4 = 6600$

CHAPTER 5 ARITHMETIC PROGRESSION

Graded worksheet 2

Student's name:	Class: X ,Section:	Date:
Duration:20Min	Max marks: 17	Estimated weightage of chapter in CBSE exam: 7 to8 marks

Q1.	If 17 th term of an AP exceeds its 10 th term by 7. The common difference is: a). 1 c). 3 b). 2 d). 4	1mark
Q2.	20 th term from the last term of the AP 3,8,13,..... 253 is a). 147 c). 154 b). 151 d). 158	1mark
Q3.	Assertion: if S_n is the sum of the first n terms of an AP then its nth term is given by $a_n = S_n - S_{n-1}$ Reason : the 10 th term of the AP 5,8,11 ,14..... is 35 (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A) (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true	1 mark
Q4.	Find the common difference of AP nth term is $8n-3$	2 marks
Q5.	How many terms of the AP 24,21,18..... Must be taken so that their sum is 78.	3 marks
Q6.	If the sum of first 10 terms of an AP is 4 times the sum of the first 5 terms, then What is the ratio.of the first term to the common difference?	3 marks

Q7.	Meena's mother starts a new shoe shop. To display the shoe she put 3 pairs of shoes in first row, 5 pair in second row, and 7 pairs in 3rd row and so on. Based on the above information, answer the following questions: i. If she puts total of 120 pairs of shoes then the number of rows required are? ii. What is the difference of pairs of shoes in 17th row and 10th row? iii. Find the pairs of shoes in 30th row? iv. What is the total number of pairs of shoes in 5th and 8th row.	1+1+2+ 2 Marks
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Answers of graded worksheet 2:

Q1. (a) $d = 1$

Q2.(d) 158

Q3.(c)

Q4. $d = 8$

Q5. Hint: $n^2 - 17n + 52 = 0$

$n = 4, 13$

Possible values is either 4 or 13

Q6. Ratio of $a:d = 1:2$

Q7. (i) $n = 10$

(ii) $a_{17} - a_{10} = 14$

(iii) $a_{30} = 61$

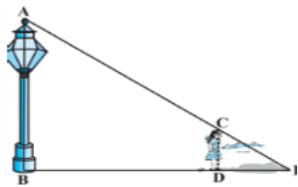
(iv) $a_5 + a_8 = 28$

CHAPTER 6 TRIANGLES

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 20 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam: 7 to 8 marks

Q1.	Two polygons of the same number of sides are similar. (a)What will be the relation between their corresponding angles? (b)What will be the relation between their corresponding sides?	1mark
Q2.	Choose the correct options given below : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): If two angles of any triangle are equal to the corresponding two angles of another triangle then the third angles are not necessarily equal. Reason (R) : The sum of three angles of any triangle is equal to 180° .	1mark
Q3.	E and F are points on the sides AB and AC respectively of a ΔABC such that $\frac{AE}{EB} = \frac{AF}{FC} = \frac{1}{2}$ Which of the following relation is true? (a) $EF = 2BC$ (b) $BC = 2EF$ (c) $EF = 3BC$ (d) $BC = 3EF$	1mark
Q4.	A street light bulb is fixed on a pole 8 m above the level of the street. If a woman of height 1.6m casts a shadow of 3.2m, what is the length of the shadow of the pole	2 marks

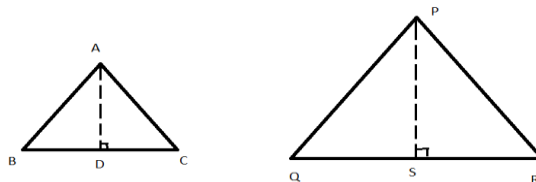


Q5.

The corresponding sides of ΔABC and ΔPQR are in the ratio 3 : 5. AD is perpendicular on BC and PS is perpendicular on QR as shown in the adjoining figures : (i) Prove that $\Delta ADC \sim \Delta PSR$

(ii) If $AD = 4$ cm, find the length of PS.

(iii) Using (ii) find $\text{ar}(\Delta ABC) : \text{ar}(\Delta PQR)$



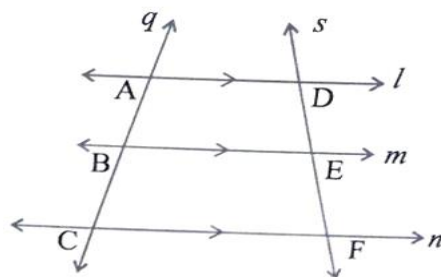
5 marks

Q6.

State basic proportionality theorem. Use it to prove the following:

If three parallel lines l, m, n are intersected by transversals q and s as shown in the adjoining figure, then

$$\frac{AB}{BC} = \frac{DE}{EF}$$



5 marks

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work

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Answers Graded worksheet 1

1. (a) equal , (b) proportional

2. (d)

3. (b)

4. Length of shadow of the pole= BC=16m.

5. (ii) $PS = \frac{20}{3}$ cm , (iii) $\frac{9}{25}$

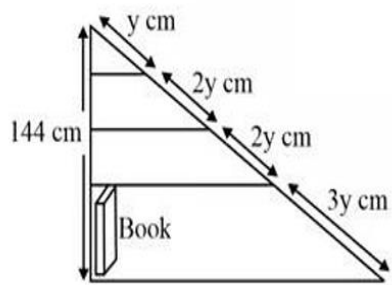
6. Hint : join C to D

CHAPTER 6 TRIANGLES

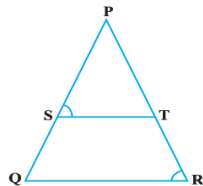
Graded worksheet 2

Student's name :	Class: 10 section: A	Date:
Duration : 25 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam: 7 to 8 marks

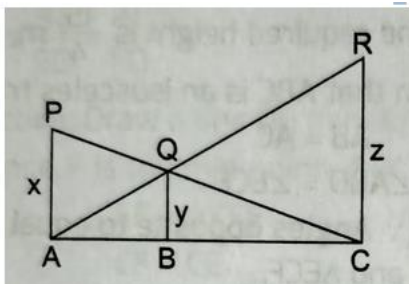
Q1.	Shreya has a piece of sweet in shape of rhombus with sides 1.5cm each. Meghna has a square piece of sweet with each side equal to 3cm. State whether the both sweet pieces are similar or not? Give reason to support your answer.	1 mark
Q2.	Choose the correct options given below : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. E and F are the points on the sides PQ and PR respectively of a triangle PQR. PE = 4 cm, QE = 4.5 cm, PF = 8 cm and RF = 9 cm. Assertion (A): EF is not parallel to QR. Reason (R) : In a triangle if two sides are divided proportionally by a line then the line is parallel to the third side.	1mark
Q3.	Leela has a triangular cabinet that fits under his staircase. There are four parallel shelves as shown in the figure. The total height of the cabinet is 144 cm. What is the maximum height of a book that can stand upright on the bottom-most shelf?	1 mark



- Q4. In the figure given below, $\frac{PS}{SQ} = \frac{PT}{TR}$, $\angle PST = \angle PRQ$. Prove that ΔPQR is an isosceles triangle.



- Q5. In the given figure PA, QB, and RC are each perpendicular to AC. If $AP = x$, $BQ = y$ and $CR = z$, then prove that : $\frac{1}{x} + \frac{1}{z} = \frac{1}{y}$



- Q6. “ If a line divides any two sides of a triangle in the same ratio, then the line must be parallel to the third side.”
State and prove the converse of this statement.

Space for rough work →		
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Answers Graded worksheet 2

1. **not similar as corresponding angles are not equal.**

2. (d)

3. **54cm 36 cm**

4. proof

5. proof

6. proof

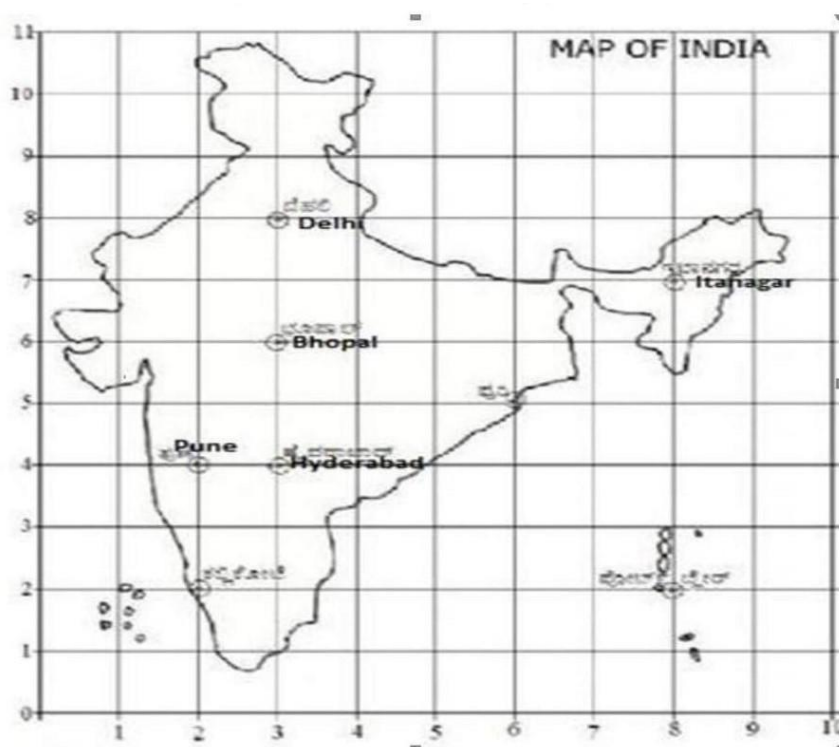
CHAPTER 7 CO-ORDINATE GEOMETRY

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 20 Min	Max marks : 10	Estimated weightage of chapter in CBSE exam: 6 to 7 marks

Q1.	The points $(-4, 0)$, $(4, 0)$, $(0, 3)$ are the vertices of a (A) Right triangle (B) Isosceles triangle (C) Equilateral triangle (D) Scalene triangle	1 Mark
Q2.	Prove that the diagonals of a rectangle ABCD, with vertices $A(2, -1)$, $B(5,1)$, $C(5, 6)$ & $D(2,6)$, are equal and bisect each other.	2 Mark
Q3.	In which quadrant the point P that divides the line segment joining the points $A(2, -5)$ and $B(5,2)$ in the ratio $2 : 3$ lies?	2 Mark
Q4.	If the point $P(x, y)$ is equidistant from the points $A(a + b, b - a)$ and $B(a - b, a + b)$, prove that $bx = ay$.	2 Mark

Observe the map and answer the following questions



Q5.	What is the distance between Delhi and Itanagar?	1 Mark
Q6	What should be the coordinates of the points exactly half way between Hyderabad and Itanagar?	1 Mark
Q7	What should be the coordinates of the points on the same line as Pune and Bhopal, where Bhopal stands exactly in the middle?	1 Mark
Space for rough work →		

Answers Graded worksheet 1

1. b) Isosceles triangle
2. proof
3. $P = (16/5, -11/5)$ Point lies in 4th quadrant.
4. correct proof
5. $\sqrt{26}$
6. Hyderabad (3, 4) Itanagar (8, 7) 11/2, 11,2
7. (4, 8)

CHAPTER 7 CO-ORDINATE GEOMETRY

Graded worksheet 2

Student's name :	Class: 10 Section:	Date:
Duration : 20 minutes	Max marks : 15	Estimated weightage of chapter in CBSE exam: 5 to 6 marks

Q1.	Which of the following is a co-ordinate point on - y axis (A) (0, 1) B)(1,0) C)(1, 1) D)(- 1,0)	1 Mark
Q2.	The equation of the line passing through the point (2 - 3) and (4,1) is A) $y = 2x - 7$ B) $y = 2x + 1$ C) $y = x/2 - 2$ D) $-x/2 - 2$	1 Mark
Q3.	If the point (2,5) lies on the line $3x-y=k$ then what is the value of k ?	1 Mark
Q4.	Find the distance of the point (a ,b)from the origin.	1 Mark
Q5.	If the distance between the points(4 ,p), (1, 0) is 5 units then find the value of p.	1 Mark
Q6	Find the area of Rhombus whose vertices are (3,0), (4,5) , (-1, 4) and (-2, -1) taken in order.	2 Mark
Q7	The center of a circle is (3k+1 , 2k-1).If the circle passes through (-1, -3) and the length of its diameter is 20 units find the value of k.	2 Mark
Q8	If P (a/3, 4) is the mid-point of the line segment joining the points Q (− 6, 5) and R (−2, 3), then find the value of a.	2 Mark
Q9	APBC is a rectangle, three vertices are A (0, 3) ,P (0, 0), B(5, 0) . Find the length of diagonal.	2 Mark

Q10	Find the relation between x and y, If the points (2, 1) (x, y) and (7,5) are collinear.	2 Mark
Space for rough work →		

Answers Graded worksheet __:

1. Answers Worksheet 1

Coordinate Geometry

Q 1 $(0, 1)$

Q 2 (A) $y = 2x - 7$

Q 3 1

Q 4 $\sqrt{a^2 + b^2}$

Q5 $(4, -4)$

Q6 24 sq units

Q 7 $k=2, -46/13$

Q 8 $a=-12$

Q 9 $\sqrt{34}$ units

Q 10 $4x - 5y - 3 = 0$

CHAPTER 8 INTRODUCTION TO TRIGONOMETRY

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 20 Min	Max marks : 10	Estimated weightage of chapter in CBSE exam: 4 to 5 marks

Q1.	If $\tan \theta = \frac{5}{2}$ then $\frac{4\sin \theta + \cos \theta}{4\sin \theta - \cos \theta}$ is equal to a) $\frac{11}{9}$ b) $\frac{3}{2}$ c) $\frac{9}{11}$ d) 4	1mark
Q2.	The angle of elevation of the top of a 15m high tower at a point 15m away from the base of the tower is a) 30° b) 45° c) 60° d) 90°	1mark
Q3.	If $\sin \theta + \cos \theta = \sqrt{2}$, then $\tan \theta + \cot \theta =$ a) 1 b) 2 c) 3 d) 4	1mark
Q4.	Evaluate $2\tan^2 45^\circ + 2\cos^2 45^\circ - 2\sin^2 45^\circ + \cot^2 45^\circ$	2marks
Q5.	Find the value of α and β if $\sin(\alpha + 2\beta) = \frac{\sqrt{3}}{2}$ $\cos(\alpha + 4\beta) = 0$	2marks
Q6.	Prove that $\frac{\tan^3 \theta}{1 + \tan^2 \theta} + \frac{\cot^3 \theta}{1 + \cot^2 \theta} = \sec \theta \operatorname{cosec} \theta - 2\sin \theta \cos \theta$	3marks
Space for rough work →		

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Answers Graded worksheet 1:

1. a) $\frac{11}{9}$

2. b) 45°

3. b) 2

4. 3

5. $\alpha=30^\circ$, $\beta=15^\circ$

CHAPTER 8 INTRODUCTION TO TRIGONOMETRY

Graded worksheet 2

Student's name :	Class: 10, section:	Date:
Duration : 20 Min	Max marks : 10	Estimated weightage of chapter in CBSE exam: 4 to 5 marks

Q1.	If $5\tan\beta=4$, then $\frac{5\sin\beta-2\cos\beta}{5\sin\beta+2\cos\beta} =$ a) $\frac{1}{3}$ b) $\frac{2}{5}$ c) $\frac{3}{5}$ d) 6	1mark
Q2.	The length of the shadow of a tower on the plane ground is $\sqrt{3}$ times the height of the tower. The angle of elevation of the sun is a) 45° b) 30° c) 60° d) 90°	1mark
Q3.	$\frac{1-\tan^2 30^\circ}{1+\tan^2 30^\circ}$ is equal to a) $\cos 60^\circ$ b) $\sin 60^\circ$ c) 1 d) $\tan^2 60^\circ$	1mark
Q4.	If $\cos A = \frac{5}{13}$ then verify that $\frac{\cos A}{1-\tan A} + \frac{\sin A}{1-\cot A} = \cos A + \sin A$	2marks
Q5.	If $7\tan^2 A + 3 = 4\sec^2 A$, then find $\tan A$.	2marks
Q6.	Prove that $\sqrt{\frac{1+\sin\theta}{1-\sin\theta}} + \sqrt{\frac{1-\sin\theta}{1+\sin\theta}} = 2\sec\theta$	3marks
Space for rough work →		

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Answers Graded worksheet __:

1. a) $\frac{1}{3}$
2. b) 30°
3. a) $\cos 60^\circ$
4. Proof
5. $\tan A = \frac{1}{\sqrt{3}}$
6. Proof

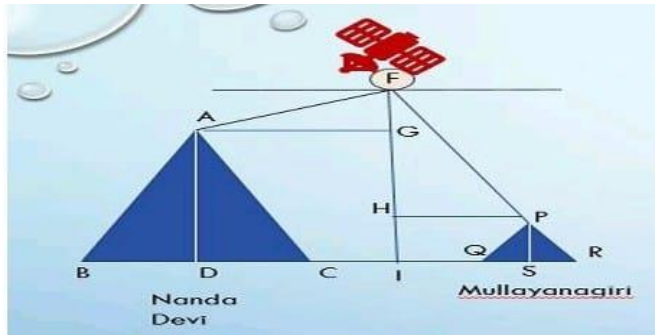
CHAPTER 9 APPLICATIONS OF TRIGONOMETRY

Graded worksheet 1

Student's name:	Class: 10, section: A	Date:
Duration: 20 Min	Max marks: 15	Estimated weightage of chapter in CBSE exam: 5 to 6 marks

Q1.	If a vertical pole of length 7.5 m casts a shadow 5 m long on the ground and at the same time, a tower casts a shadow 24 m long, then the height of the tower is: (a) 20 m (b) 40 m (c) 60 m (d) 36 m	1 mark
Q2.	Choose the correct options given below: (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): When we move towards the object, angle of elevation increases. Reason (R): The values of the trigonometric ratios of an angle vary with the lengths of the sides of the triangle, if the angle remains the same.	1 mark
Q3.	The angle of elevation of the top of the building from the foot of the tower is 30° and the angle of elevation of the top of the tower from the foot of the building is 60° . If the tower is 50 m high, find the height of the building.	3 marks
Q4.	From the top of a hill, the angle of depression of two consecutive kilometer stones due east are found to be 45° and 30° respectively. Find the height of the hill.	3 marks
Q5.	A man on the top of a vertical observation tower observes a car moving at a uniform speed coming directly towards it. If it takes 12 minutes for the angle of depression to change from 30° to 45° , how long will the car take to reach the observation tower from this point?	3 marks
Q6.	CASE STUDY BASED QUESTION A satellite flying at height h is watching the top of two tallest mountains in Uttarakhand and Karnataka them being Nanda Devi (height 7,816 m) and Mullayanagiri (height 1,930 m). The angle of depression from the satellite, to the top of Nanda Devi and Mullayanagiri are 30° and 60° respectively. If the	4 marks

distance between the peaks of two mountains is 1937 km, and the satellite is vertically above the midpoint of the distance between the two mountains.



- (i) The distance of the satellite from the top of Nanda Devi is..
- (ii) The distance of satellite from the ground is
- (iii) What is the angle of elevation if a man is standing at a distance of 7816 m from Nanda Devi?
- (iv) The distance of satellite from the top of Mullayanagiri is

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Answers Graded worksheet __:

1. (d) 36 m

2. (c)

3. 16.67 m approx

4. $\frac{\sqrt{3}-1}{2}$ Km

5. $6(\sqrt{3} + 1)$ minutes

6. (i) 1118.36 km

(ii) 567 km

(iii) 45°

(iv) 1937 km

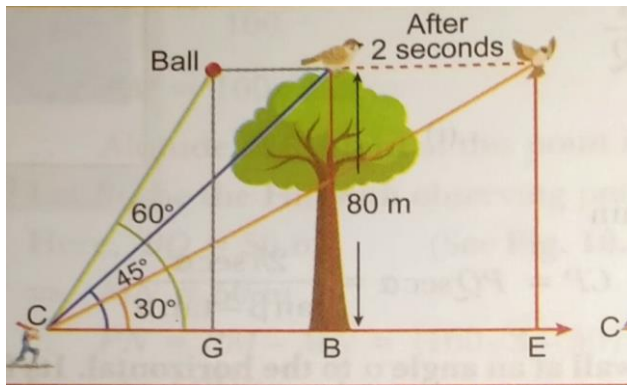
CHAPTER 9 APPLICATIONS OF TRIGONOMETRY

Graded worksheet 2

Student's name :	Class: 10, section: A	Date:
Duration : 20 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam: 5 to 6 marks

Q1.	The tops of two poles of height 16 m and 10 m are connected by a wire of length l metres. If the wire makes an angle of 30° with the horizontal, then l is equal to (a) 26 m (b) 16 m (c) 12 m (d) 10 m	1mark
Q2.	Choose the correct options given below : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): If the angle of elevation of Sun above a tower decreases, then the shadow of tower increases. Reason (R) : It is due to decrease in slope ($\tan \theta$) of the line of sight, where θ is the angle between line of sight and horizontal.	1mark
Q3.	From a point on a bridge across a river, the angles of depressions of the banks on opposite sides of the river are 30° and 45° respectively. If the bridge is at a height of 3 m from the banks, then find the width of the river.	3 marks
Q4.	One observer estimates the angle of elevation to the basket of a hot air balloon to be 60° , while another observer 100 m away estimates the angle of elevation to be 30° . Find: (a) the height of the basket from the ground. (b) the distance of the basket from the first observer's eye. (c) the horizontal distance of the second observer from the basket.	3 marks
Q5.	A man is climbing on a ladder which is inclined to the wall at an angle of 30° . If he ascends at the rate of 2 m/s, then he approaches the wall at the rate of	3 marks
Q6.	CASE STUDY QUESTIONS	4 marks

One evening, Kaushik was in a park where children were playing cricket. Birds were singing in a nearby tree that was 80 m tall. He observed a bird on the tree at an angle of elevation of 45° . When a sixer was hit, the ball flew through the tree, scaring the bird away. 2 seconds later, Kaushik noticed that the bird was flying at the same height but at an angle of elevation of 30° . Meanwhile, the ball was also flying towards him at the same height with an angle of elevation of 60° .



Based on the above information, answer the following questions:

(i) At what distance from the foot of the tree was he observing the bird sitting on the tree?

(ii) (a) How far did the bird fly in the mentioned time?

OR

(b) After hitting the tree, how far did the ball travel horizontally in the sky when Kaushik saw the ball?

(iii) What is the speed of the bird in m / min if it had flown $20(\sqrt{3} + 1)$ m?

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Answers Graded worksheet 2

1. (c) 12 m

2. (a)

3. $3(\sqrt{3} + 1)$ m

4. (a) $50\sqrt{3}$ m

(b) Distance of the basket from first observer = 100 m

(c) Horizontal distance of the second observer from the basket = 150 m

5. 1 m/s

6. (i) CB = 80 m

(ii) (a) Distance the bird flew = $80(\sqrt{3} - 1)$ m

OR

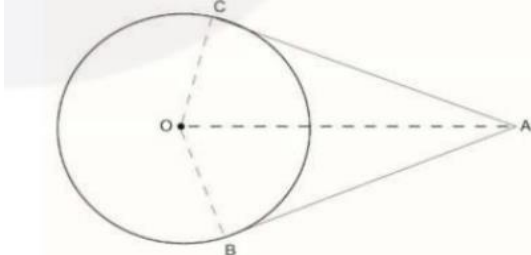
(b) Distance the ball travelled after hitting the tree = $80(1 - \frac{1}{\sqrt{3}})$ m

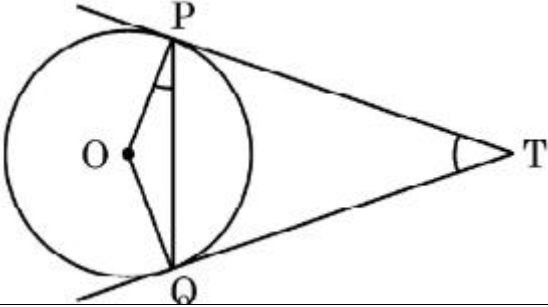
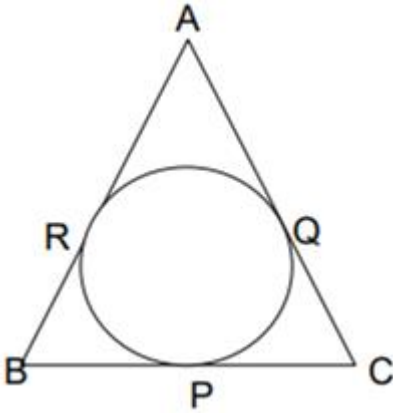
(iii) Speed of the bird = $600(\sqrt{3} + 1)$ m / min

CHAPTER 10 CIRCLE

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 20 Min	Max marks : 11	Estimated weightage of chapter in CBSE exam: 7 to 8 marks

Q1.	Which of the following is a special case of secant (a) Diameter (b) Chord (c) Tangent (d) Arc	1mark
Q2.	Choose the correct options given below : (a)Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): The tangent drawn at the end points of diameter of a circle are parallel. Reason (R) : Diameter is the longest chord of the circle	1mark
Q3.	Given below is a diagram of pair of pulley : The length of AC is 12cm.What is the perimeter of triangle ABO if the radius of circle is 5cm 	2marks
Q4.	In two concentric circles, a chord of length 24 cm of the larger circle touches the smaller circle, whose radius is 5 cm. Find the radius of the larger circle.	2 marks
Q5.		2marks

	Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$. 	
Q6.	Find the length BC of $\triangle ABC$. Given that, a circle is inscribed in $\triangle ABC$ touching the sides AB, BC and CA at R, P and Q respectively and $AB = 10$ cm, $AQ = 7$ cm, $CQ = 5$ cm. 	3marks
Space for rough work →		

Answers Graded worksheet 1

1.tangent

2.B

3.30cm

4.13cm

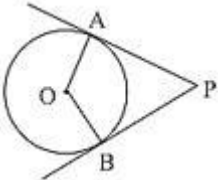
5.correct proof

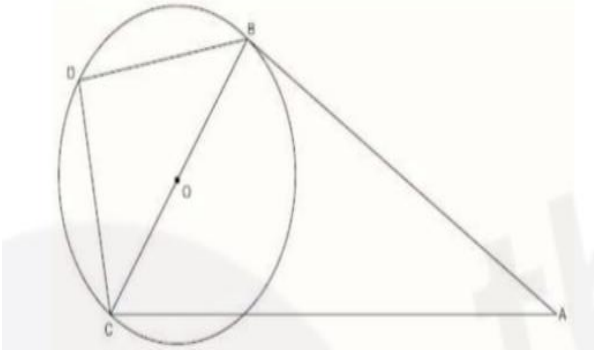
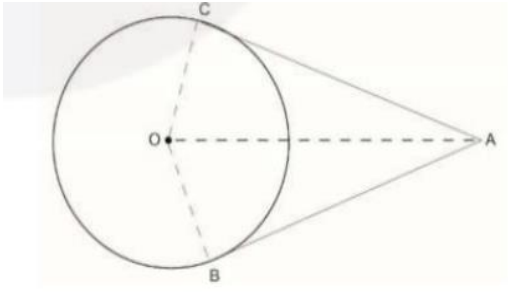
6.6.8 cm

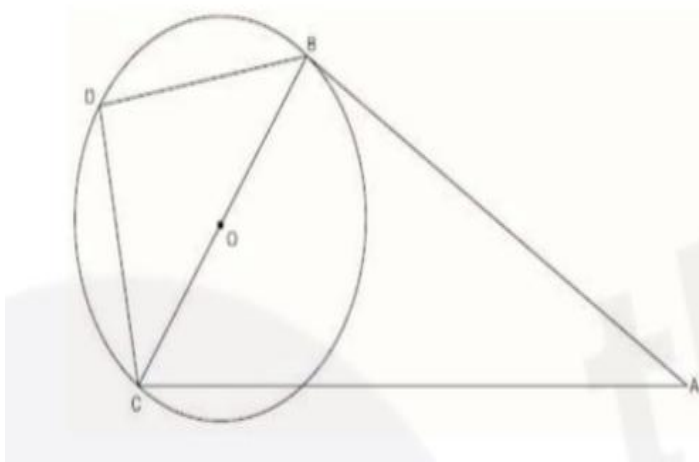
CHAPTER 10 CIRCLE

Graded worksheet 2

Student's name :	Class: 10, section:	Date:
Duration : 20 Min	Max marks : 10	Estimated weightage of chapter in CBSE exam: 7 to 8 marks

Q1.	A line intersecting a circle only one point is called a _____. (a) tangent (b) secant (c) centre (d) radius	1mark
Q2.	Choose the correct options given below : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): If PA and PB are tangents drawn to a circle with center O from an external point P, then the quadrilateral OAPB is a cyclic quadrilateral. Reason (R) : In cyclic quadrilateral opposite angles are equal. 	1mark

Q3.	The figure shown below represents a circle with center O and diameter 12 cm. In triangle DBC, $\angle DBC = \angle BCD$ and $\angle A = 50^\circ$ What is the measure of $\angle DCA$? 	2marks
Q4.	In the given figure, $\angle CAB = 50^\circ$. What is the measure of $\angle AOC$? 	2 marks
Q5.	Anu says, 'A circle of radius 10 cm can have 100 tangents.' Is Anu correct? Give a reason to justify	1mark
Q6.	The figure shown below represents a circle with centre O and diameter 12 cm. In triangle DBA, $\angle DBC = \angle BCD$ and $\angle A = 50^\circ$ In triangle BAC, the length of side CA = 2.5 times OB. What is the length of side BA?	3marks



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Answers Graded worksheet 2

1. tangent

2.c

3.85°

4.65°

5.correct reason

6.9cm

CHAPTER 11 AREA RELATED TO CIRCLE

Graded worksheet 1

Student's name :	Class: 10, section: A	Date:
Duration : 30 Minutes	Max marks :15 marks	Estimated weightage of chapter in CBSE exam: 6_ to 8_ marks

Q1.	The area of a circular path of uniform width 'b' surrounding by a circular region of inner radius 'r' is (a) $\pi b(2r+b)$ (b) $\pi(2r+b)r$ (c) $\pi(r+b)r$ (d) $\pi(r+b)b$	1_mark
Q2.	Choose the correct options given below : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): The area of a sector of a circle depends only on the radius. Reason (R) : The area of a sector is calculated using the formula $\frac{\theta}{360} \cdot \pi r^2$ where θ the central angle.	1 mark
Q.3	What is the perimeter of the Sector with diameter 21 cm and sector angle 60° .	2 marks
Q. 4	If a quadrant is cut from a circle of a circumference 44 cm then find the perimeter of remaining part of the circle.	2 marks
Q 5.	A circular ROTI is cut into equal slices and rearranged in the form of the parallelogram if a perimeter of parallelogram is 58 CM then find the area of a quarter of a that ROTI. (Use $\pi=22/7$)	3 marks



Q.6	A circular window has a radius of 1 m a square frame is placed around the window with each side of the frame touching the circle. What is the area of the frame?	3 marks
Q.7	There is a square field of length 14 cm. A cow is tied with a rope of 6m length at a corner and a calf also ties with rope of 7 m length at opposite vertices find the area of the grass which remained ungrazed.	3 marks

WORKSHEET -1

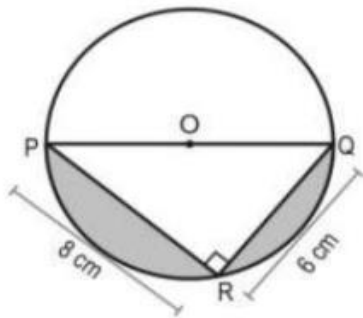
ANSWERS

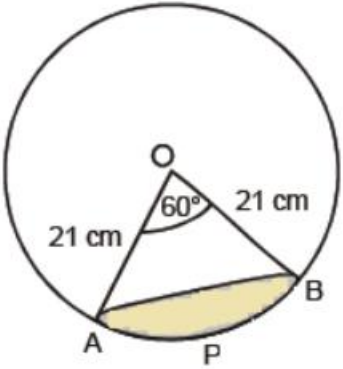
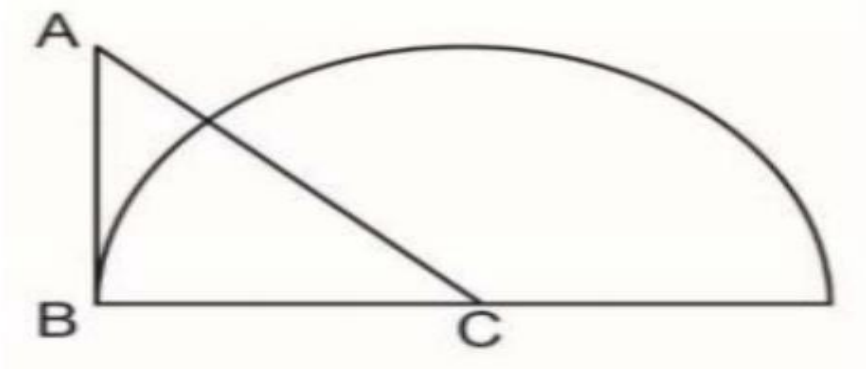
1. (a) $\pi b (2r+b)$
2. D
3. 33
4. 47 CM
5. $77/2 \text{ cm}^2$
6. $4M^2$
7. 129.214 cm^2

CHAPTER 11 AREA RELATED TO CIRCLE

Graded worksheet 2

Student's name :	Class: 10, section: A	Date:
Duration : 30 Minutes	Max marks :15	Estimated weightage of chapter in CBSE exam: 6 to 8 marks

1.	In the figure given below, O is the centre of the circle .PR and RQ are the chords of the circle. The radius of circle is 5 cm. If PR= 8 cm, QR= 6 cm, $\angle PRQ=90^\circ$, what is the approximate area of the shaded region .  (Note: The figure is not to scale.) (A) $(25\pi/4 - 24)\text{cm}^2$ (B) $(25\pi/2 - 24)\text{cm}^2$ (C) $25\pi/4\text{cm}^2$ (D) $25\pi/2\text{cm}$	1
Q.2	Choose the correct options given below : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): If outer and inner radius of a circular path is 5m and 3m then area of that path is $16\pi\text{m}^2$ Reason (R) : The Area of a path with outer and inner radius as R And r respectively then area of the path is $\pi(R^2 - r^2)$	1

3	In a circle of radius 7 cm, an arc subtends an angle of 45° at the centre, then find the area of corresponding sector.	1mark
4	The radius of a circle is 14 cm. Find the area of the sector of circle enclosed by two radii and arc 44 cm in length.	2 marks
5	What is the perimeter of the sector of a circle whose diameter is 21 cm and sector angle of 60° .	2 marks
6	In a circle of radius 21 cm an arc subtends an angle of 60° at the centre. Find the perimeter of shaded portion 	3 marks
7	Given below is a geometrical shape. C is the centre of the circle with radius BC = 28 cm .ABC is an isosceles right triangle  Calculate the area of the triangle outside the circular region.	5 marks

Answers Graded worksheet 2

1. $B\left(\frac{25\pi}{2} - 24\right) \text{ cm}^2$

2. A

3. $77/2 \text{ cm}^2$

4. 308 cm^2

5. 32 cm

6. 43 cm

7. 84 cm^2

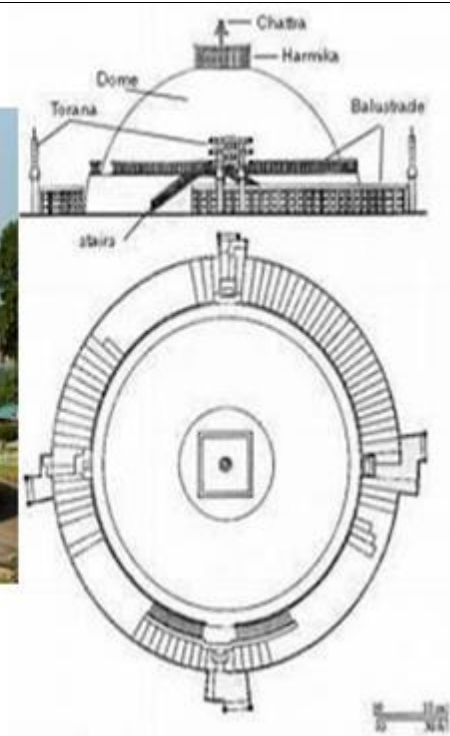
CHAPTER 12 SURFACE AREA AND VOLUMES

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 30 Min	Max marks : 16	Estimated weightage of chapter in CBSE exam: 6 to 8 marks

Q1.	The volume of largest right circular cone hat can be cut out from a cube of edge 4.2cm is: (a) 9.7 cm^3 (b) 77.6 cm^3 (c) 58.2 cm^3 (d) 19.4 cm^3	1mark
Q2.	Choose the correct options given below : (a)Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): Slant height of a cone of height 4 cm and radius 3 cm is 5 cm. Reason (R) : Curved surface area of a cone is given by πrl .	1mark
Q3.	Find the volume of the largest right circular cone that can be carved out from a cube of each edge 2cm.(Give answer In terms of π).	2 marks

Q4.	A circus tent is cylindrical up to 8m and conical above it. The diameter of base is 28m and total height of tent is 18.5m. find: (i) slant ht. of conical part (ii) cloth required for making the tent.	3 marks
Q5.	A solid is in the shape of a cone standing on a hemisphere with both their radii being equal to 1 cm and the height of the cone is equal to its radius. Find the volume of the solid in terms of π.	3 marks
Q6.	The Great Stupa at Sanchi is one of the oldest stone structures in India, and an important monument of Indian Architecture. It was originally commissioned by the emperor Ashoka in the 3rd century BCE. Its nucleus was a simple hemispherical brick structure built over the relics of the Buddha. .It is a perfect example of a combination of solid figures. A big hemispherical dome with a cuboidal structure mounted on it. (Take $\pi = 22/7$) 1) Calculate the volume of the hemispherical dome if the height of the dome is 21 m. 2) Write the formula to find the Volume of Sphere. 3) Find the cloth area require to cover the hemispherical dome if the radius of base is 14m. 4) Find the total surface area of the combined figure i.e., hemispherical dome with radius 14m and cuboidal shaped top with dimensions 8m by 6m by 4m.	1+1+2+ 2 marks



SPACE FOR ROUGH WORK

Answers Graded worksheet 1

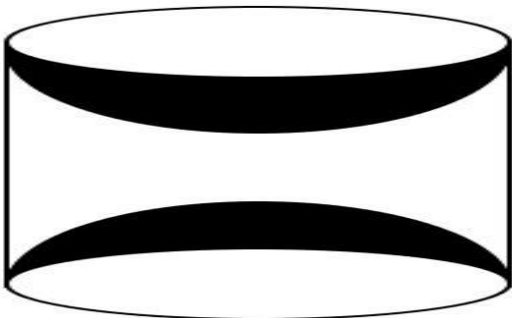
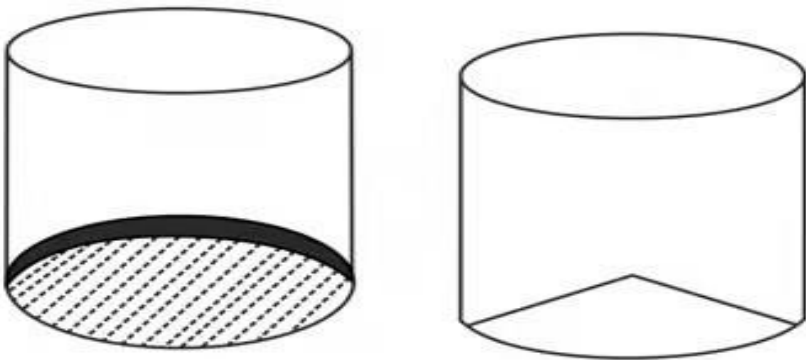
1. (d) 19.4 cm^3
2. (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
3. $\frac{2}{3}\pi \text{ cm}^3$
4. (i) 17.5 m (ii) 1474 m^2
5. $\pi \text{ cm}^3$
6. 1) 19404 m^3 2) $\frac{4}{3}\pi r^3$ 3) 1232 m^2 4) 1392 m^2

CHAPTER 12 SURFACE AREA AND VOLUMES

Graded worksheet 2

Student's name :	Class: 10, section:	Date:
Duration : 30 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam: 6 to 8 marks

Q1.	If the radius of sphere is increased by 200% then how much volume of the corresponding sphere is increased by: (a) 400% (b) 800% (c) 1600% (d) 2600%	1mark
Q2.	Choose the correct options given below : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): If radius of cone is halved and volume is not changed then height remains same. Reason (R) : If radius of cone is halved and volume is not changed, then height must become four times of original height.	1mark
Q3.	Volume of two spheres are in the ratio 64:27. Find ratio of their surface areas.	2 marks

Q4.	A wooden article was made by scooping out a hemisphere from each end of a solid cylinder as shown in figure. If the height of cylinder is 10cm and its base is of radius 3.5cm. Find total surface area of Article. 	3 marks
Q5.	A milk tanker cylindrical in shape having diameter 2 m and length 4.2 m supplies milk to the two booths in the ratio of 3:2. One of the milk booths has cuboidal vessel having base area 3.96 sq.m and the other has cylindrical vessel having radius 1m. Find level of milk in each vessels.	3 marks
Q6.	Diksha is 15 years old girl. On the result day, Diksha and her father Suresh were very happy as she got first position in the class. While coming back to their home, Diksha asked for a treat from her father as a reward for her success. They went to a juice shop and asked for two glasses of juice., A juice seller, was serving juice to her customers in two type of glasses. Both the glasses had inner radius 3 cm. The height of both the glasses was 10 cm. First type: A Glass with hemispherical raised bottom. Second type: A glass with conical raised bottom of height 1.5 cm. Diksha insisted to have the juice in first type of glass and her father decided to have the juice in second type of glass.  Out of the two, Diksha or her father Suresh, who got more quantity of juice to drink and by how much.	5 marks

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SPACE FOR ROUGH WORK→

Answers Graded worksheet 2

1. (d) 2600%

2. (d)

3. 16:9

4. 374 cm^2

5. 2m, 1.68 m

6. $13.5 \pi \text{ cm}^3$

CHAPTER 13 STATISTICS

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 20 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam: 7 to 8 marks

Q1.	Empirical relation between mean ,median and mode is (1)	1 mark							
	a). $2\text{Mode} = \text{Median} - 3\text{Mean}$ b). $\text{Mode} = 2\text{Median} + 3\text{Mean}$ c). $3\text{Mode} = \text{Median} - 2\text{Mean}$ d). $\text{Mode} = 3\text{Median} - 2\text{Mean}$								
Q2.	Choose the correct options given below : (a)Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): If the mode and mean of a grouped frequency distribution are 60 and 66 respectively, then the median is 64. Reason (R) : Median = $\frac{\text{Mode}+2 \text{ Mean}}{2}$	1mark							
Q3.	The frequency distribution table of agriculture holdings in a village is given below .Find the mode.	2 marks							
	<table><tr><td>Area Of Land in</td><td>1-3</td><td>3-5</td><td>5-7</td><td>7-9</td><td>9-11</td><td>11-13</td></tr></table>	Area Of Land in	1-3	3-5	5-7	7-9	9-11	11-13	
Area Of Land in	1-3	3-5	5-7	7-9	9-11	11-13			

	<table><tr><td>ha.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>No. of families</td><td>20</td><td>45</td><td>80</td><td>55</td><td>40</td><td>12</td><td></td></tr></table>	ha.								No. of families	20	45	80	55	40	12		
ha.																		
No. of families	20	45	80	55	40	12												
Q4.	If the arithmetic mean of the following frequency distribution is 47 ,then find the value of F. <table><tr><td>Class Interval</td><td>0-20</td><td>20-40</td><td>40-60</td><td>60-80</td><td>80-100</td></tr><tr><td>Frequency</td><td>8</td><td>15</td><td>20</td><td>F</td><td>5</td></tr></table>	Class Interval	0-20	20-40	40-60	60-80	80-100	Frequency	8	15	20	F	5	3marks				
Class Interval	0-20	20-40	40-60	60-80	80-100													
Frequency	8	15	20	F	5													
Q5.	During the medical examination of students of a class, height was noted and following table was prepared. Find the median of following data. <table><tr><td>Height(in cm)</td><td>No. Of Students</td></tr><tr><td>More than 100</td><td>50</td></tr><tr><td>More than 120</td><td>38</td></tr><tr><td>More than 140</td><td>24</td></tr><tr><td>More than 160</td><td>16</td></tr><tr><td>More than 180</td><td>10</td></tr></table>	Height(in cm)	No. Of Students	More than 100	50	More than 120	38	More than 140	24	More than 160	16	More than 180	10	3 marks				
Height(in cm)	No. Of Students																	
More than 100	50																	
More than 120	38																	
More than 140	24																	
More than 160	16																	
More than 180	10																	
Q6.	The median of the distribution given below is 28.5. Find the values of x and y, if the sum of all the frequencies is 60. <table><tr><td>Class interval</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td><td>50-60</td></tr><tr><td>Frequency</td><td>5</td><td>x</td><td>20</td><td>15</td><td>y</td><td>5</td></tr></table>	Class interval	0-10	10-20	20-30	30-40	40-50	50-60	Frequency	5	x	20	15	y	5	5marks		
Class interval	0-10	10-20	20-30	30-40	40-50	50-60												
Frequency	5	x	20	15	y	5												

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SPACE FOR ROUGH WORK

Answers Graded worksheet 1

1. d

2. c

3. 6.16 hectares

4. 12

5. 138.57cm

6. $x = 8$, $y = 7$

CHAPTER 13 STATISTICS

Graded worksheet 2

Student's name :	Class: 10, section:	Date:
Duration : 20 Min	Max marks : 15	Estimated weightage of chapter in CBSE exam: 7 to 8 marks

Q1	If mode of a data is 8 and mean is 9, then the median is A) 8.57 B) 8.97 C) 9.24 D) 8.67						1 mark	
Q2	Choose the correct options given below : (a)Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): The mean of 1,4,7,10.....301 is 151 Reason (R) : the mean of series a, a+d, a+2d....., a+2nd is a+nd						1mark	
Q3	Prepare the frequency distribution table of the following data.						2 marks	
	AGE	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50		Less than 60
	No. of Patients	0	60	102	157	227		280
Q4	If mean of the following distribution is 6, find the value of p						3marks	
	X	2	4	6	10	P+5		
	Y	3	2	3	1	2		

Q5	A survey regarding the heights in cm. of 50 girls of a class was conducted and the following data was obtained. Find the mode of the data						3marks
	Height(in cm.)	120-130	130-140	140-150	150-160	160-170	
	No. of girls	2	8	12	20	8	

Q6	The median of the distribution given below is 28.5. Find the values of x and y, if the sum of all the frequencies is 60.						5 marks
	Class interval	0-10	10-20	20-30	30-40	40-50	50-60
	Frequency	5	x	20	15	y	5

Answers Graded worksheet 2

Answer

Q1) d

Q2) a

Q3) Correct table ---2 marks

Q4) $p = 7$

Q5) 154

Q6) $x = 8$, $y = 7$

CHAPTER 14 PROBABILITY

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 15 Min	Max marks : 10	Estimated weightage of chapter in CBSE exam:4 to 6 marks

Q1.	Two coins are tossed. what is the probability of getting at least one tail?	1mark
Q2.	Choose the correct options given below : (a)Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): The probability of any event always lies between 0 and 1 (inclusive) Reason (R) : The number of favorable outcomes can never be more than the total number of outcomes.	1mark
Q3.	A die is thrown twice, what is the Probability that (a) 5 will not come up either. (b) 5 will come up at least once	2 marks
Q4.	Cards marked with number 3, 4, 5 , 50 are placed in a box and mixed thoroughly . A card is drawn at random from the box. Find the probability that selected card bears a perfect square.	2marks
Q5.	A girl calculates that the probability of her winning the first prize in a lottery is 0.08. If 6000 tickets are sold, in how many tickets has she won prizes?	2 marks
Q6.	Apoorv throws two dice once and computes the product of the numbers appearing on the dice. Peehu throws one die and squares the number that appears on it. Who has the better chance of getting the number 36? Why?	2 marks
Space for rough work →		

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WORKSHEET-I

ANSWERS

1. $\frac{3}{4}$

2. (a)

3. (i) $\frac{25}{36}$ (ii) $\frac{11}{36}$

4. $\frac{1}{8}$

5. 480

6. Peehu ; probability of Apoorv's getting 3 is $\frac{1}{36}$, while probability of Peehu's getting 36 is $\frac{1}{6}$.

CHAPTER 14 PROBABILITY

Graded worksheet 1

Student's name :	Class: 10, section:	Date:
Duration : 15 Min	Max marks : 12	Estimated weightage of chapter in CBSE exam: 4 to 6 marks

Q1.	If a number x is chosen from 1, 2, 3 and a number y is selected from the numbers 1, 4, 9. Then Probability that $(xy < 9)$, that is $P(xy < 9) = \dots\dots$ (a) $\frac{3}{9}$ (b) $\frac{7}{9}$ (c) $\frac{5}{9}$ (d) $\frac{4}{9}$	1_mark
Q2.	Choose the correct options given below : (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true. Assertion (A): Event E_1 getting a number less than 3 and Event E_2 : getting a number greater than 3 are complementary events. Reason (R) : If two events E and F are complementary events, then $P(E) + P(F) = 1$	1mark
Q3.	For an event E, $P(E) + P(\text{not } E) = x$, then the value of $x^3 - 3$ is (a) 1 (b) 2 (c) -2 (d) -1	1 mark
Q4.	Two dice are rolled together. The probability of getting an outcome (a, b) such that $b = 2a$ is (a) $\frac{1}{6}$ (b) $\frac{1}{12}$ (c) $\frac{1}{36}$ (d) $\frac{1}{9}$	1 mark
Q5.	CASE STUDY: Blood group describes the type of blood a person has. It is a classification of blood based on the presence or absence of inherited antigenic substances on the surface of red blood cells. Blood types predict whether a serious reaction will occur in a blood transfusion.	6 marks

	In a sample of 50 people, 21 had type O blood, 22 had type A, 5 had type B and rest had type AB blood group. Based on the above, answer the following questions: (i) What is the probability that a person chosen at random had type O blood? (ii) What is the probability that a person chosen at random had type AB blood group? (iii) What is the probability that a person chosen at random had neither type A nor type B blood group? (iv) What is the probability that person chosen at random had either type A or type B or type O blood group?	
Q6.	The number of red balls in a bag is three more than the number of black balls. If the probability of drawing a red ball at random from the given bag is $\frac{12}{23}$. find the total number of balls in the given bag. OR Find the probability of getting 53 Fridays in a leap year.	2 marks
SPACE FOR ROUGH WORK		

Answers Graded worksheet 2

1. (c) $\frac{5}{9}$

2. (d) Assertion (A) is false but Reason (R) is true.

3. (c) -2

4. (b) $\frac{1}{12}$

5. (i) $\frac{21}{50}$

(ii) $\frac{1}{25}$

(iii) $\frac{23}{50}$ (iv) $\frac{24}{25}$

6. 69 Balls OR $\frac{2}{7}$