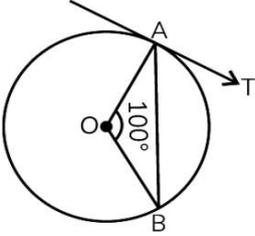
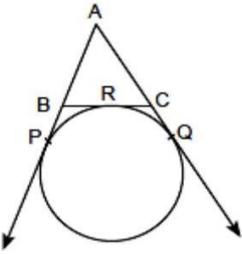
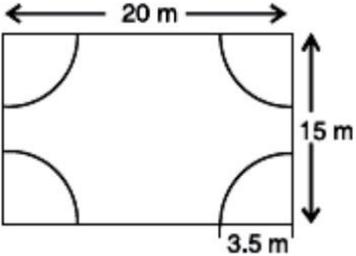
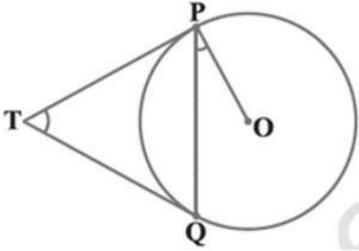


12.	<p>In the given figure, O is the centre of a circle, AB is a chord and AT is the tangent at A. If $\angle AOB = 100^\circ$, then $\angle BAT$ is equal to</p>  <p>a) 90° b) 100° c) 40° d) 50°</p>	1
13.	<p>In the figure, AP, AQ and BC are tangents to the circle. If $AB = 5\text{ cm}$, $AC = 6\text{ cm}$ and $BC = 4\text{ cm}$, then the length of AP (in cm) is</p>  <p>a) 7.5 cm b) 15 cm c) 7 cm d) 9 cm</p>	1
14.	<p>The perimeter of a sector which makes an angle of 60° at the centre and has a radius 6 cm is (Take $\pi = 3.14$)</p> <p>a) 6.28 cm b) 12 cm c) 18.28 cm d) 12.28 cm</p>	1
15.	<p>A box contains cards numbered 9 to 53. A card is drawn at random from the box. The probability that the drawn card has a number which is a perfect square is :</p> <p>a) $\frac{1}{45}$ b) $\frac{1}{9}$ c) $\frac{7}{53}$ d) $\frac{5}{53}$</p>	1
16.	<p>A school has five houses A, B, C, D and E. A class has 23 students, 4 from house A, 8 from house B, 5 from house C, 2 from house D and the rest from house E. A single student is selected at random to be the class monitor. The probability that the selected student is not from houses A, B and C is:</p> <p>a) $\frac{6}{23}$ b) $\frac{17}{23}$ c) $\frac{7}{23}$ d) $\frac{8}{23}$</p>	1
17.	<p>One card is drawn from a well shuffled deck of 52 cards. The probability of getting a red face card is</p> <p>a) $\frac{3}{13}$ b) $\frac{1}{26}$ c) $\frac{3}{52}$ d) $\frac{3}{26}$</p>	1
18.	<p>A rectangular piece is 20 m long and 15 m wide. From its four corners, quadrants of radii 3.5 m have been cut. The area of the remaining part will be</p>  <p>a) 38.5 sq.m b) 260.5 sq.m c) 261.5 sq.m d) 338.5 sq.m</p>	1

	<p>DIRECTIONS: In the question number 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R).</p> <p>Choose the correct option:</p> <p>(A)Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)</p> <p>(B)Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A)</p> <p>(C)Assertion (A) is true but reason (R) is false.</p> <p>(D)Assertion (A) is false but reason (R) is true.</p>	
19.	<p>Assertion (A): If $a_n = 7 - 4n$ is the n^{th} term of an Arithmetic Progression then the common difference of the A.P = 7.</p> <p>Reason (R): The common difference of an A.P with general term $a + bn$ is b, which is the coefficient of “n”.</p>	1
20.	<p>Assertion (A): The radii of two cones are in the ratio 2:3 and their volumes in the ratio 1 : 3. Then the ratio of their heights is 3 : 4.</p> <p>Reason (R): The Volume of a Cone is $\frac{1}{3}\pi r^2 h$ –</p>	1
	<p>(Section – B)</p> <p>Section B consists of 5 questions of 2 marks each.</p>	
21.	<p>Show that $2 \times 5 \times 7 \times 11 + 11 \times 13$ is a composite number. Give reason for your answer.</p> <p style="text-align: center;">OR</p> <p>Prove that $3 + 2\sqrt{5}$ is irrational , given that $\sqrt{5}$ is irrational. –</p>	2
22.	<p>The angle of depression of a car parked on the road from the top of a 150 m high tower is 30°. Find the distance of the car from the tower (in metres).</p>	2
23.	<p>A vertical pole of length 6 m casts a shadow 4m long on the ground and at the same time a tower casts a shadow 28 m long. Find the height of the tower.</p>	2
24.	<p>Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact.</p>	2
25.	<p>With the vertices A, B, C of a triangle ABC as centres, three sectors of radii 14 cm are drawn and then removed. Find the total area of the sectors removed from the triangle.</p> <p style="text-align: center;">OR</p> <p>A horse is placed for grazing inside a rectangular field 70 m by 52 m and is tethered to one corner by a rope 21 m long. On how much area can it graze?</p> <p>(Take $\pi = \frac{22}{7}$)</p>	2
	<p>(Section – C)</p> <p>Section C consists of 6 questions of 3 marks each.</p>	
26.	<p>A School bought refreshments for their Annual day which was to be distributed to their students. They bought 144 cartons of Mango drink and 90 cartons of Apple drink. The cartons were arranged in a room such that the stacks were of same height and also the cartons in a stack were of same drink . Using this information ,find</p> <p>i) The greatest number of cartons each stack would have.</p> <p>ii) The total number of stacks kept in the room.</p>	3

27.	<p>A fraction becomes $\frac{4}{5}$ if 1 is added to both the numerator and the denominator. If, however, 5 is subtracted from both the numerator and the denominator, the fraction becomes $\frac{1}{2}$. What is the fraction?</p> <p style="text-align: center;">OR</p> <p>Find the values of p and q for which the following system of equations has infinite number of solutions.</p> $2x+3y=7$ $(p+q)x+(2p-q)y=21$	3												
28.	<p>If α and β are the zeroes of the polynomial $3x^2 - 4x + 1$, then use the concept of sum and product of zeroes to evaluate the following-</p> <p style="text-align: center;">(i) $\frac{1}{\alpha} + \frac{1}{\beta}$ (ii) $\alpha + \beta$</p>	3												
29.	<p>If $\sin\theta + \cos\theta = \sqrt{3}$ then prove that $\tan\theta + \cot\theta = 1$.</p> <p style="text-align: center;">OR</p> <p>Evaluate: $2(\cos^2 45^\circ + \tan^2 60^\circ) - 6(\sin^2 45^\circ - \tan^2 30^\circ)$</p>	3												
30.	<p>Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2 \angle OPQ$.</p> <div style="text-align: center;">  </div>	3												
31.	<p>The arithmetic mean of the following frequency distribution is 50. Find the missing frequency “p” in the data.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tbody> <tr> <td style="width: 15%;">Class</td> <td style="width: 15%;">0-20</td> <td style="width: 15%;">20-40</td> <td style="width: 15%;">40-60</td> <td style="width: 15%;">60-80</td> <td style="width: 15%;">80-100</td> </tr> <tr> <td>Frequency</td> <td>17</td> <td>p</td> <td>32</td> <td>24</td> <td>19</td> </tr> </tbody> </table>	Class	0-20	20-40	40-60	60-80	80-100	Frequency	17	p	32	24	19	3
Class	0-20	20-40	40-60	60-80	80-100									
Frequency	17	p	32	24	19									
<p>(Section – D)</p> <p>Section D consists of 4 questions of 5 marks each</p>														
32.	<p>In a class test, the sum of Kiya’s marks in Hindi and English is 30. She thought, “If she had got 2 marks more in Hindi and 3 marks less in English, the product of her marks would have been 210”. Find the marks obtained by her in the two subjects.</p>	5												
33.	<p>i) State and prove Basic proportionality theorem. ii) Using the above theorem, prove that a line drawn from the mid point of one side of a triangle parallel to another side bisects the third side.</p> <p style="text-align: center;">OR</p> <p>A girl of height 90cm is walking away from the base of a lamp-post at a speed of 1.2m/s. If the lamp is 3.6 m above the ground, find the length of her shadow after 4 seconds.</p>	5												

34.	The median of the following data is 137. Find the values of x and y , If the total frequency is 68.							5
	C I	65-85	85-105	105-125	125-145	145-165	165-185	185-205
	Frequency	4	x	13	20	14	y	4

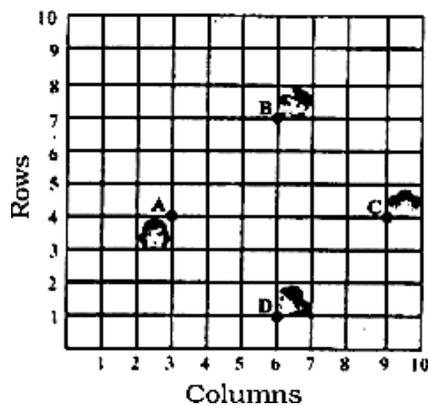
35.	<p>Due to heavy floods in a state, thousands were rendered homeless. 50 schools collectively decided to provide place and the canvas for 250 tents and share the whole expenditure equally. The lower part of each tent is cylindrical with base radius 2.8 m and height 3.5m and the upper part is conical with the same base radius, but of height 2.1m. If the canvas used to make the tents costs ₹120 per sq.m, find the amount shared by each school to set up the tents. (Take $\pi = \frac{22}{7}$)</p> <p style="text-align: center;">OR</p> <p>A solid iron pole consists of a cylinder of height 220 cm and base diameter 24 cm, which is surmounted by another cylinder of height 60 cm and radius 8 cm. find the mass in kg of the pole given that 1 cu.cm. of iron has approx. 8gm of mass (use $\pi = 3.14$)</p>	5
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(Section – E)
Section E consists of 3 case study-based questions of 4 marks each

36.	<p>In a potato race, a bucket is placed at the starting point, which is 5 m from the first potato, and the other potatoes are placed 3 m apart in a straight line. There are ten potatoes in the line.</p>  <p>A competitor starts from the bucket, picks up the nearest potato, runs back with it, drops it in the bucket, runs back to pick up the next potato, runs to the bucket to drop it in, and she continues in the same way until all the potatoes are in the bucket.</p> <p>i) Write the arithmetic progression formed in this situation. ii) How much distance would she have run till she dropped the seventh potato in the bucket? iii) a) What is the total distance the competitor has to run to complete the race?</p> <p style="text-align: center;">OR</p> <p>iii) b) At what stage would she have dropped the potato in the bucket and covered 110m?</p>	4
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37. In a classroom, 4 friends are seated at the points A, B, C and D as shown in Figure Champa and Chameli walk into the class and after observing for a few minutes Champa asks Chameli, “What do you think is the shape of ABCD ?” Chameli decides to check the same using the concepts learnt in her Mathematics class.

4



Help Chameli solve the Champa’s questions by answering the following–

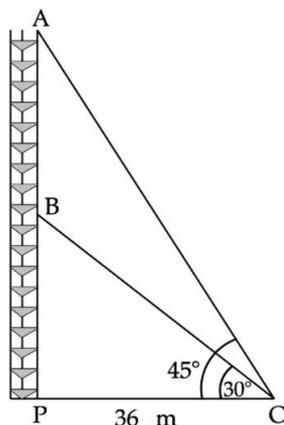
- i) Write down the coordinates of A, B, C and D from the picture shown above.
- ii) You can see that ABCD is a quadrilateral. Find the length of its diagonals.
- iii) a) Find the type of quadrilateral formed by the girls.

OR

- b) If A moved two steps vertically upwards and C moved two steps vertically downwards then find the distance between A and C.

38. Radio towers are used for transmitting a range of communication services including radio and television. The tower will either act as an antenna itself or support one or more antennas on its structure. On a similar concept, a radio station tower was built in two Sections A and B. Tower is supported by wires from a point O.

4



Distance between the base of the tower and point O is 36 m. From point O, the angle of elevation of the top of the Section B is 30° and the angle of elevation of the top of Section A is 45° .

Based on the above information, answer the following questions:

- (i) Find the length of the wire from the point O to the top of section B
- (ii) Find the height of section A from the base P.
- (iii) a) Find the distance between Section A and Section B

OR

- b) Find the area of $\triangle OPB$ upto two decimal places. (Use $\sqrt{3} = 1.73$)

