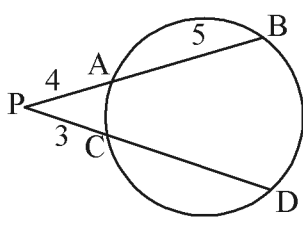
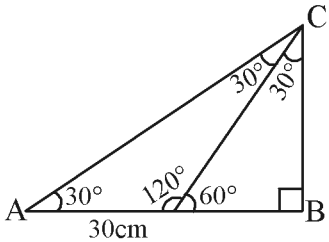


DISTRICT INSTITUTE OF EDUCATION AND TRAINING THIRUVANANTHAPURAM
EVALUATION TOOL FOR CLASS X – 2022 FEBRUARY
MATHEMATICS
ANSWER KEY

Sl.no.	Value Points	Score	Total
1.	6	1	
2.	$(x + 4)(x - 4)$	1	
3.	800 cm^3	1	
4.	$\angle ACB = 50^\circ$	1	
5.	5 unit	1	
6.	$\frac{7}{12}$	1	
7.	45°	1	
8.	100	1	
9.	(0, 6)	1	
10.	40°	1	
11.	 <p>a. $PB = 4 + 5 = 9\text{cm}$</p> <p>b. $PC \times PD = PA \times PB$ $3 \times PD = 4 \times 9$ $PD = 12\text{cm}$ $\therefore CD = 12 - 3 = 9\text{cm}$</p>	1 1	2
12.	<p>a. $d = \frac{29-17}{9-5} = 3$</p> <p>b. $f = 5$</p>	1 1	2
13.	<p>a. Mean = $\frac{30+46+42+36+38+44+34+40+32}{9}$</p> <p>Mean Weight = $\frac{342}{9} = 38\text{kg.}$</p> <p>b. Ascending order 30, 32, 34, 36, 38, 40, 42, 44, 46</p> <p>Median weight = 38kg.</p>	1 1	2
14.	<p>a. Angles of $\triangle AED$ $30^\circ, 60^\circ, 90^\circ$</p> <p>$DE = \frac{4}{2}\sqrt{3} = 2\sqrt{3} \text{ cm}$</p>	1	

	b. Area of parallelogram ABCD = $bh = 10 \times 2\sqrt{3} = 20\sqrt{3} \text{ cm}^2$.	1	2
15.	a. Area of the shaded triangle = $\frac{60}{4} = 15\text{cm}^2$	1	
	b. $\frac{15}{60} = \frac{1}{4}$	1	2
16.	Inradius = $\frac{45}{15} = 3\text{cm}$	2	2
17.	$S_n = 4n^2 + 3n$		
	a. First term = $4 + 3 = 7$	1	
	b. Sum of 10 terms	1	2
	$S_{10} = 4 \times 10^2 + 3 \times 10$		
	$= 400 + 30 = 430$		
18.	a. Slope = $\frac{9-5}{3-1} = \frac{4}{2} = 2$	1	
	b. Let (x, y) is a point on the line.		
	Slope of the line joining $(1, 5)$ and $(x, y) = 2$	1	2
	$\frac{y-5}{x-1} = 2$		
	$y - 5 = 2(x - 1)$		
	$y - 5 = 2x - 2$		
	$2x - y - 2 + 5 = 0$		
	$2x - y + 3 = 0$		
19.	For drawing circle and marking central angles	2	
	For completing the triangle	2	4
20.	a. breadth = $16 - x$	1	
	b. $x(16 - x) = 60$	1	
	Length = 10cm, breadth = 6cm	1 + 1	4
21.	a. Centre of the circle $(5, 4)$	1	
	b. Radius of the circle 3 unit	1	
	c. Coordinates of the points $(5, 7), (5, 1)$	2	4
22.	a. Slant height = 12cm	1	
	b. Central angle = 120°	1	
	c. Base radius = 4cm	1	
	d. Curved surface area = $48\pi \text{ sq.cm}$	1	4
23.	Drawing the circle and marking the point 'P'.	1	
	Drawing the tangents	2	
	Measuring the lengths	1	4

24.	a. $\angle ABC = 90^\circ$ b. $\angle ACB = 40^\circ$ c. $\sin 40 = \frac{8}{AC}$, $AC = 12.5\text{cm}$	1 1 1 + 1	4
25.	a. Total number of pairs = 15×9 Probability of both balls being white = $\frac{4}{15}$ b. Probability of one ball being white and one black $= \frac{(6 \times 5) + (9 \times 4)}{15 \times 9} = \frac{22}{45}$	1 1 1	4
26.	a. 4m b. 4π c. $\frac{2}{3}\pi$ d. 16747 litre	1 2 2	6
27.	a. $(-5, 0), (5, 0)$ b. $(0, -5), (0, 5)$ c. 4	2 2 2	6
28.	 <p>a.</p> <p>b. $\triangle ADC$ is isosceles $AD = DC = 30\text{m}$. $DB = \frac{30}{2} = 15\text{m}$</p> <p>c. $BC = 15\sqrt{3}\text{m}$</p>	1 1 1	6
29.	a. For drawing rectangle b. For finding side of the square. For drawing square.	2 1 3	6
30.	a. Numbers $x, x + 3$ b. $x(x + 3) = 270$ $x^2 + 3x - 270 = 0$ $x = 15$ c. Numbers 15, 18	1 1 1 2	6
31.	a. $p(2) = 4 - 30 + 26 = 0$ b. $(x - 2)(x - 13)$ c. $x = 2, x = 13$	2 2 2	6

32.

Scores	Number of students
Below 10	5
Below 20	16
Below 30	26
Below 40	39
Below 50	45

- a. Score of 23rd student
 b. Median comes in 20 - 30. There are 10 students in this division. Let us divide this division into 10 subdivisions and assume that score of each student in the middle of a subdivision

$$\text{Length of a subdivision} = \frac{30-20}{10} = 1$$

$$\text{Score of 17 th student} = 20 + \frac{1}{2} \times 1 = 20\frac{1}{2}$$

c. Median = $20\frac{1}{2} + 6 \times 1 = 26\frac{1}{2}$

1
1

2 **6**

2

33.

- a. 102
 b. 102, 105, 108,

$$\text{Number of multiples} = \frac{999-102}{3} + 1 = 300$$

- c. 100, 103, 106,

$$\text{Number of multiples} = 300$$

$$\text{Sum} = \frac{300}{2} [100 + 997] = 164550$$

1
1

2 **8**

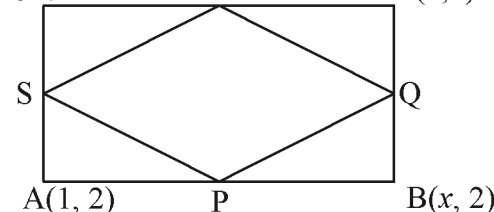
1
1

2

34.

- a. $\angle APO = 90^\circ$, $\angle POR = 130^\circ$, $\angle POQ = 120^\circ$, $\angle QOR = 110^\circ$
 b. For drawing circle
 For marking angles 130° , 120° at the centre
 For drawing tangents and completing the triangle.

D(1,y) R C(5,4)



4
1
1
2

8

35.

- a.
 $x = 5$, $y = 4$
 b. Midpoints (3, 2), (5, 3), (3, 4), (1, 3)
 c. Sides of the quadrilateral PQRS

$$PQ = \sqrt{(5-3)^2 + (3-2)^2} = \sqrt{5}$$

$$QR = \sqrt{5}, RS = \sqrt{5}, SP = \sqrt{5}$$

Since the sides are equal, PQRS is a rhombus.

2
2

3 **8**
1