



Indian School Al Wadi Al Kabir

Name of exam: Pre-Midterm Examination

Sub: Mathematics -Answer Key

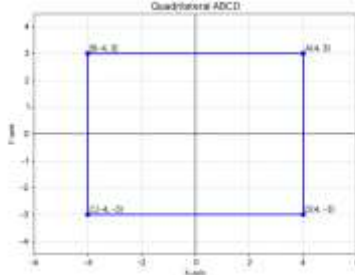
Class: IX

Date: 17/05/2026

Max. Marks: 30

Time: 1hr.

	Section A	PART-1(MCQ-1 mark each)	
Q. No.	Questions		Marks
1.	b) -5		1m
2.	d) 5, 25		1m
3.	c) (0,-5)		1m
4.	b) $\sqrt{2}x + 3$		1m
5.	c) (3,-5)		1m
6.	c) (6,3)		1m
	ASSERTION AND REASONING (1 mark each)		
7.	(d) Assertion (A) is false but Reason (R) is true.		1m
8.	i) 12 units ii) X axis: information desk, y axis main fountain		2m
9.	The base (helicopter's starting point) is at $(x_1, y_1) = (0, 0)$ The hiker's location is at $(x_2, y_2) = (8, 15)$ $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ (1/2) $= \sqrt{(8 - 0)^2 + (15 - 0)^2}$ (1/2) $= \sqrt{8^2 + 15^2}$ $= \sqrt{64 + 225}$ (1/2) $= \sqrt{289} = 17$ (1/2) the shortest distance the helicopter must fly to reach the hiker is 17 kilometers. OR A signal transmission line passes through a central hub located at R(2, -1). The line forms a diameter of the signal coverage area. One end of this line is at Tower A(-4, 3) and the other end is at Tower B(x, y). Calculate the radius of the signal coverage area $\text{Midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$ (1/2)		2m

	$\frac{-4+x}{2} = 2 \implies x = 8;$ $\frac{3+y}{2} = -1 \implies y = -5.$ The coordinates of point B are (8, -5). (1) Radius = $\sqrt{(2 - (-4))^2 + (-1 - 3)^2} = \sqrt{6^2 + (-4)^2} = \sqrt{36 + 16}$ = $\sqrt{52}$ or $2\sqrt{13}$ units. (1/2)											
10.	<table border="1"><tr><td>Time</td><td>1</td><td>4</td><td>8</td><td>12</td></tr><tr><td>Water left(litres)</td><td>475</td><td>400</td><td>300</td><td>200</td></tr></table> Linear expression w= 500 – 25n (½ x 4 = 2)	Time	1	4	8	12	Water left(litres)	475	400	300	200	2m
Time	1	4	8	12								
Water left(litres)	475	400	300	200								
11.	 plotting points (4 x ½ = 2), joining points ½ (½) Area = 48 square units	3m										
12.	$AB = \sqrt{(12 - 0)^2 + (16 - 0)^2} = \sqrt{144 + 256} = \sqrt{400} = 20$ $BC = \sqrt{(24 - 12)^2 + (7 - 16)^2} = \sqrt{12^2 + (-9)^2} = \sqrt{144 + 81} = \sqrt{225} = 15$ $AC = \sqrt{(24 - 0)^2 + (7 - 0)^2} = \sqrt{24^2 + 7^2} = \sqrt{576 + 49} = \sqrt{625} = 25$ $AB^2 + BC^2 = 400 + 225 = 625$ $AC^2 = 625$ AB² + BC² = AC², it forms a right angles triangle	(½) (½) (½) (½)										
13.	Let Rahul's present age be 5x Harry's present age be 7x After 4 years, Rahul's age will be 5x + 4 Harry's age will be 7x + 4 ATQ, (5x + 4) + (7x + 4) = 56 12x + 8 = 56 12x = 56-8=48 X = 4 Rahul's present age: 5x = 20 years Harry's present age: 7x= 28 years OR Let ₹100 notes be 2x, ₹50 notes be 3x and ₹10 notes be 5x Value of ₹100 = 200x Value of ₹50 = 150x Value of ₹10 = 50x	½ ½ 1 ½ ½ (½) (½)										

	$200x + 150x + 50x = 4,00,000$ $400x = 4,00,000$ $x = 1000$ Number of ₹100 notes: $2 \times 1000 = 2,000$ Number of ₹50 notes: $3 \times 1000 = 3,000$ Number of ₹10 notes: $5 \times 1000 = 5,000$	$(\frac{1}{2})$ $(\frac{1}{2})$ $(\frac{1}{2})$ $(\frac{1}{2})$
14.	CASE STUDY-I: i) Perimeter = $2(l+b) = 2[(2x + 5) + (x + 2)]$ $= 2[3x+7] = 6x+14$ The linear expression for the perimeter is $6x + 14$ meters. ii) When $x=32$, $L = 2(32) + 5 = 64 + 5 = 69\text{m}$ $w = (32) + 2 = 34\text{m}$ iii) a) Area=Length x Breadth= $69 \times 34 = 2,346 \text{ m}^2$ Cost = $2,346 \times 15 = ₹35,190$ iii)b) $6x + 14 = 164$ $6x = 164 - 14 = 150$ $x = 25$ Length (L): $2(25) + 5 = 50 + 5 = 55$ meters Breadth (W): $25 + 2 = 27$ meters	$(\frac{1}{2} + \frac{1}{2})$ $(\frac{1}{2} + \frac{1}{2})$ $(1+1)$ 1 $(\frac{1}{2} + \frac{1}{2})$
15.	CASE STUDY-II: The City Planning Project: The Main Gate (G) is located at $(-2, 3)$. The Fountain (F) is located at $(4, 3)$. The Jogging Track Start (S) is at $(4, -1)$. The Picnic Spot (P) is at $(-2, -1)$. i) 6 units ii) II quadrant iii) a) $GP = \sqrt{(-2 - (-2))^2 + (-1 - 3)^2}$ $GP = \sqrt{(0)^2 + (-4)^2}$ $GP = \sqrt{16}$ $GP = 4 \text{ units}$ Total Cost = Length $\times$ Rate $\text{Total Cost} = 4 \times 500$ $\text{Total Cost} = ₹2,000$ OR	 1 1 1 1

b) A security guard walks along the boundary of the park starting from the Fountain (F), moving to the Jogging Track Start (S), then to the Picnic Spot (P), and finally stopping at the Main Gate (G). Calculate the total distance covered by the guard.

Using points F(4, 3) and S(4, -1):

$$d_1 = \sqrt{(4 - 4)^2 + (-1 - 3)^2}$$

$$d_1 = \sqrt{(0)^2 + (-4)^2}$$

$$d_1 = \sqrt{0 + 16} = \sqrt{16}$$

FS = 4 units

(½)

Using points S(4, -1) and P(-2, -1):

$$d_2 = \sqrt{(-6)^2 + (0)^2}$$

$$d_2 = \sqrt{36 + 0} = \sqrt{36}$$

PS = 6 units

(½)

Using points P(-2, -1) and G(-2,3):

$$= \sqrt{(-2 - (-2))^2 + (3 - (-1))^2}$$

$$d_3 = \sqrt{(0)^2 + (4)^2}$$

$$d_3 = \sqrt{0 + 16} = \sqrt{16}$$

PG = 4 units

(½)

Total Distance = 4 + 6 + 4 = 14 units

(½)

All the Best