INDIAN SCHOOL AL WADI AL KABIR

Pre-Mid Term Examination (2025-26)

Class: X | Sub: MATHEMATICS (041) | Max Marks: 30

Date: 18 - 05 - 2025 | Time: 1 hour

Marking Scheme

Section A (1 mark each)	
Q.1.	(B) 2a = b
Q.2.	(D) 924
Q.3.	(A) parallel
Q.4.	(D)-19
Q.5.	(C) $2 \times 3^2 \times 5^3 \times p^2$
Q.6.	(B) p=r=-2
Q.7.	(c) Assertion (A) is true but reason (R) is false.
Section B (2 marks each)	
Q.8.	Sum of zeroes = $\sqrt{5}-4+\sqrt{5}+4=2\sqrt{5}$ ½ m Product of zeroes = $(\sqrt{5}-4)(\sqrt{5}+4)=-11$ ½ m Polynomial = $k(x^2-2\sqrt{5}x-11)$ 1m **OR** Ans: $p(y)=ky^2+2y-3k$ $a=k, b=2, c=-3k$ According to the question, Sum of zeroes = 2 × product of zeroes $\Rightarrow \frac{-b}{a}=2\times\frac{c}{a}\Rightarrow\frac{-2}{k}=2\times\frac{-3k}{k}$ 1m $\Rightarrow \frac{2}{k}=6\Rightarrow k=\frac{1}{3}$ 1m

Q.9.	$2x + y = 13$ ---- (i) $4x - y = 17$ ---- (ii) Solving (i) and (ii) x = 5 & y = 3 x – y = 2	1½ m ½ m
Q.10.	$7 \times 11 \times 13 + 2 \times 11 = 11 \times (7 \times 13 + 2)$ The given number has more than two factors Hence, it is not a prime number.	1m 1m
	Section C (3 marks each)	
Q.11.	Let $p(x) = 3x^2 - 5x - 2$ $= (3x + 1)(x - 2)$ $\therefore$ zeroes are $-\frac{1}{3}$, 2 Sum of zeroes $= -\frac{1}{3} + 2 = \frac{5}{3} = -\frac{\text{Coeff. of x}}{\text{Coeff. of x}^2}$ Product of zeroes $= -\frac{1}{3} \times 2 = -\frac{2}{3} = \frac{\text{Constant term}}{\text{Coeff. of x}^2}$	1m 1m 1m
Q.12.	Let $\sqrt{3}$ be a rational number. $\therefore \sqrt{3} = \frac{p}{q}$, where $q \neq 0$ and p & q are coprime. $3q^2 = p^2 \Rightarrow p^2$ is divisible by 3 $\Rightarrow$ p is divisible by 3 ----- (i) $\Rightarrow p = 3a$, where 'a' is some integer $9a^2 = 3q^2 \Rightarrow q^2 = 3a^2 \Rightarrow q^2$ is divisible by 3 $\Rightarrow$ q is divisible by 3 ----- (ii) (i) and (ii) leads to contradiction as 'p' and 'q' are coprime. $\therefore \sqrt{3}$ is an irrational number.	1m 1m 1m

Q.13.	$5x + 7y = 250$…..(i) $7x + 5y = 302$…..(ii) $12x + 12y = 552$ $x + y = 46$ $2x - 2y = 52$ $x - y = 26$ Solving for x and y, x = 36, y = 10 Cost of one pen and that of a pencil is ₹ 36 and ₹ 10 respectively. **OR** Let us denote the incomes of the two persons by ₹ 9x and ₹7x and their expenditures by ₹4y and ₹3y respectively. $9x - 4y = 2000$ $7x - 3y = 2000$ $27x - 12y = 6000$ $28x - 12y = 8000$ $(28x - 27x) - (12y - 12y) = 8000 - 6000$ i.e., x = 2000 get $9(2000) - 4y = 2000$ i.e., y = 4000 So, x = 2000, y = 4000. Therefore, the monthly incomes of the persons are ₹18,000 and ₹14,000, respectively.	1m 1m ½ m ½ m 1m 1m ½ m ½ m
	Section D (4 marks each)	
Q.14.	(i) $x + 25y = 4500$ $x + 30y = 5200$ (ii)Intersecting lines $\frac{1}{1} \neq \frac{5}{6} \rightarrow \frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ (ii) (a)$x + 25y = 4500$	½ m ½ m ½ m ½ m

	x + 30y = 5200 Subtracting the given equations, 5 y = 700 y = 140, x = 4500-3500 = 1000 Fixed Charge is ₹1000 **OR** x+ 25y = 4500 x + 30y = 5200 Subtracting the given equations,5 y = 700 y = 140, x = 4500-3500 = 1000 Cost of food per day ₹140	½ m 1 m ½ m ½ m 1 m ½ m
Q.15.	(i)-5 and 5 (ii) x^2 -25 (iii)a) Let α and β be the zeroes of given polynomial Here, $\alpha + \beta = -p$ and $\alpha\beta = 45$ $(\alpha - \beta)^2 = 144$ $\Rightarrow (\alpha + \beta)^2 - 4\alpha\beta = 144$ $\Rightarrow (-p)^2 - 4 \times 45 = 144$ $\Rightarrow p = \pm 18$ **OR** **(b)** $P(x) = 5x^2 + 5x + 1$ $\alpha+\beta = \frac{-b}{a} = \frac{-5}{5} = -1$ $\alpha\beta = \frac{c}{a} = \frac{1}{5}$ $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta$ $= (-1)^2 - 2\left(\frac{1}{5}\right)$ $= 1 - \frac{2}{5} = \frac{3}{5}$	1m 1m ½ m 1m ½ m ½ m ½ m ½ m ½ m

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