Class - 10th

Subject - Maths M.M - 30

MCQ

Q.1 a) The zeroes of the polynomial $p(x) = x^2 + 4x + 3$ are given by:

i) 1, 3 (ii) -1, 3 (iii) 1, -3 (iv) -1, -3

b) If α and β are the zeroes of the polynomial $x^2 + x - 2$, then find the value of $\frac{\alpha}{\beta} + \frac{\beta}{\alpha}$.

i) $\frac{3}{2}$ (ii) $-\frac{5}{2}$ (iii) 3 (iv) 9

c) If α and β are the zeroes of the polynomial $ax^2 - 5x + c$ and $\alpha + \beta = \alpha\beta = 10$, then

i) $a = 5$, $c = \frac{1}{2}$ (ii) $a = 1$, $c = \frac{5}{2}$ (iii) $a = \frac{5}{2}$, $c = 1$

iv) $a = \frac{1}{2}$, $c = 5$

d) The pair of linear equations $2x = 5y + 6$ and $15y = 6x - 18$ represents two lines which are:

i) intersecting (ii) parallel (iii) coincident (iv) either intersecting or parallel.

e) The pair of equations $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$ have:

i) a unique solutions (ii) exactly two solutions (iii) infinitely many solutions (iv) no solution

$(5 \times 1 = 5)$

Q.2 Assertion and Reason Type Questions:

In these questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true and R is not the correct explanation of A

c) A is true but R is false.

d) A is false but R is true.

i) A: A quadratic polynomial, whose zeroes are -3 and 4 is $x^2 - x - 12$.

R: The quadratic polynomial whose zeroes are α and β, then quadratic polynomial is $x^2 - (\alpha + \beta)x + \alpha\beta$. a

ii) (A): If the pair of lines are coincident then we say that pair is consistent and it has a unique solutions.

R: If the pair of lines are parallel, then the pair has no solution and is called inconsistent pair of equations. d (2×1=2)

Q.3 Solve the following pair of equation by substitution method.
$x+y=14$, $x-y=4$ $x=9$, $y=5$ (3)

Q.4 Draw the graphs of the equations $x-y+1=0$ and $3x+2y-12=0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region. (4,0) (-1,0) (2,3) (4)

Q.5 On comparing ratio $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find out whether the following pair of linear equations are consistent or inconsistent : $\frac{3}{2}x+\frac{5}{3}y=7$; $9x-10y=14$ $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ - Consistent (3)

Q.6 Check whether the following pair of linear equations has unique solution, no solution, or infinitely many solutions. In case there is a unique solution, find it. $\frac{a_1}{a_2}=\frac{b_1}{b_2}=\frac{c_1}{c_2}$ (3)
$3x-5y=20$; $6x-10y=40$ infinitely many solutions

Q.7 If α, β are the zeroes of a polynomial, such that $\alpha+\beta=-6$ and $\alpha\beta=-4$, then write the polynomial (2)
x^2+6x-4

Q.8 Find the zeroes of the polynomial $4x^2-3x-1$ by factorisation method and verify the relations between the zeroes and coefficients of the polynomial. $(x-1)(4x+1)$ 1, $-\frac{1}{4}$ (4)
$\alpha+\beta=\frac{3}{4}$
$\alpha\beta=\frac{1}{4}$

Q.9 If p, q are zeroes of polynomial $f(x)=2x^2-7x+3$ find the value of p^2+q^2. (4)

$p+q=\frac{7}{2}$, $pq=\frac{3}{2}$

$p^2+q^2=\frac{37}{4}$