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MM 30

Linear equations in 2 variables

Time 1 h

Section A 1 mark each

- The system of equations $2x + 7y = -5$ and $6x + 21y = 8$ represents two lines which are
 - Coincident
 - Parallel
 - Intersect exactly at a point
 - Intersect exactly at two points
- The pair of equations $2x + 7y = -k$ and $4x + 21y = 8$ will have unique solution if $k =$
 - 3
 - 3
 - all real values
 - no real value
- A man has only Re 1 and Rs 2 coins with him. If the total number of coins that he has is 50 and the amount of money with him is Rs75, then the number of Re 1 and Rs 2 coins are, respectively
 - 35 and 15
 - 35 and 20
 - 15 and 35
 - 25 and 25
- $\sqrt{5}x - \sqrt{7}y = 0$ and $\sqrt{7}x + \sqrt{5}y = 0$ has solution
 - $x = 0, y = 0$
 - $x = 1, y = 0$
 - $x = 0, y = 1$
 - $x = 1, y = 1$
- The pair of equations $x = c$ and $y = d$ graphically represents lines which are
 - parallel
 - intersecting at (d, c)
 - coincident
 - intersecting at (c, d)

Section B 2 marks each

- The line represented by $y = -2$ is parallel to the y -axis. Justify whether the statement is true or not.
- Solve by cross multiplication Solve $x + y = a + b$, $ax - by = a^2 - b^2$
- For which values of q and r , will the following pair of linear equations have infinitely many solutions? $4x + 5y = 2$, $(2q + 7r)x + (q + 8r)y = 2q - q + 1$.
- Find p for coincidental lines $12x + py = p$, $px + 3y - p + 3 = 0$

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Section C 3 marks each

9. Solve graphically and find vertices of triangle formed $x = y$, $5y - x = 14$ and $2x + y = 1$
10. The age of the father is twice the sum of the ages of his two sons. After 20 years, his age will be equal to the sum of the ages of his sons. Find the age of the father graphically.
11. 4 boys and 10 men can finish a work in 2 days, while 6 boys and 12 men can finish it in $1\frac{1}{2}$ days. Find the time taken by 1 boy and 1 man together to finish work.

Section D 4 marks each

12. A two-digit number is obtained by either multiplying the sum of the digits by 8 and then subtracting 5 or by multiplying the difference of the digits by 16 and then adding 3. Find the number/numbers.
13. A part of monthly hostel charges is fixed and the remaining depends on the number of days one has taken food in the mess. When a student A takes food for 20 days she has to pay Rs 1000 as Hostel charges where as a student B, who take food for 26 days, pays Rs 1180 as Hostel charges. Find Hostel charges for 17 days.

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