

Is there a value of c for which the system has infinite number of solutions?

10. Find the value of k for which the following pairs of equations have unique solutions:

i) $7x - 2y = 3$; $22x - ky = 8$

(ii) $2x + 3y - 5 = 0$; $kx - 6y - 8 = 0$

11. For what value(s) of k will the pair of linear equations: $kx + 3y = k - 3$; $12x + ky = k$ have a unique solution?

12. Last year 1 kg of tea and 3 kg of sugar together cost Rs 96. This year, the rates of tea increased by 15% and that of sugar by 10%. So the amount of tea and sugar now cost Rs. 108.60. Find the per kg rates of tea & sugar last year.

13. A boat goes 24 km upstream & 28 km downstream in 6 hours. In 6.5 hours, it can go 30 km upstream & 21 km downstream. Find the speed of stream and the speed of boat in still water.

14. A person invests some amount @ 12% S.I. and some other amount @ 10% S.I. He receives an annual interest of Rs.1300. But if he interchanges the amounts invested, he shall receive Rs.40 more as interest. How much has he invested at each rate?

15. If 1 is added to both the numerator and the denominator of a fraction, it becomes equal to $\frac{7}{8}$. If, however, 1 is subtracted from both the numerator & denominator of the same fraction, it becomes equal to $\frac{6}{7}$. Find the fraction.

16. The age of a father 8 yrs back was 5 times that of his son. After 8 yrs, his age will be 8 yrs more than double the age of his son. Find their present ages.

17. There are some lotus flowers in a lake. If 1 butterfly sits on each flower, one butterfly is left behind. If 2 butterflies sit on each flower, 1 flower is left behind. What is the no. of flowers? What is the no. of butterflies?

18. If one zero of the polynomial $(k + 1)x^2 - 5x + 5$ is multiplicative inverse of the other, then find the zeroes of $kx^2 - 3kx + 9$, where k is constant.

19. For what value of K is 4 a zero of $f(x) = x^2 + kx + 4$?

20. If one zero of the quadratic polynomial $f(x) = 4x^2 - 8kx + 8x - 9$ is negative of the other, then find the zeroes of $kx^2 + kx + 2$.

21. What must be subtracted from $8x^4 + 14x^3 - 2x^2 + 7x - 8$ so that the resulting polynomial is exactly divisible by $4x^2 + 3x - 2$?
22. What must be added to $4x^4 + 2x^3 - 2x^2 + x - 1$, so that the resulting polynomial is divisible by $x^2 + 2x - 3$?
23. If -2 is a zero of $f(x) = x^3 + 13x^2 + 32x + 20$, find its other zeroes.
24. Obtain all zeroes of the polynomial $p(x) = 2x^4 + x^3 - 14x^2 - 19x - 6$, if two of its zeroes are -1 and -2 .
25. Find all values of p and q so that $1, -2$ are zeroes of the polynomial $f(x) = x^3 + 10x^2 + px + q$.
26. If $p(x) = 2x^4 + 3x^3 - 3x^2 - 2x + 5$ is divided by $2x^2 + 3x - 1$, then the remainder is $x - a$.
Find a .
27. On dividing $f(x) = 2x^3 - 5x^2 + 4x - 8$ by $g(x)$, the quotient and the remainder are $(2x - 9)$ and $(24x - 17)$, respectively. Find $g(x)$.

ACTIVITIES

1. To determine the zeros of the polynomial graphically and verify algebraically.
2. To verify that the lengths of the tangents drawn from the external point to a circle are equal.
3. To verify the conditions for consistency of a system of linear equations in two variables by graphical representation.

MIND MAP

1. Coordinate Geometry.
 2. Probability.
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