K12 ASPIRE

The Center of Learning Excellence
No 10A, 2nd Floor, Thiruvalluvar Nagar
1st Main Road, Thiruvanmiyur, Chennai 600041
9962006587 / 88

CLASS X CBSE MATHS TEST SERIES PAPER 3

Topics Covered

Polynomials
Pair of linear equations
Co-ordinate geometry
Area related to circles

Answer any 7 (2 marks each)

1. If α and β are the zeros of the polynomial $f(x) = x^2 – 6x + k$, find the value of k, such that $\alpha^2 + \beta^2 = 40$
2. If one of the zeros of quadratic polynomial $f(x) = 14x^2 – 42k^2x – 9$ is negative of the other, find the value of "k".
3. Find the quotient and remainder on dividing P(x) by g(x) : $P(x) = 4x^3+8x^2+8x+7$; $g(x)=2x^2-x+1$.
4. If x^3-6x^2+6x+k is completely divisible by x-3, then find the value of k.
5. For what value of p does the pair of linear equations given below has unique solution ?
   $4x+py+8=0$, $2x+2y+2=0$
6. Solve : $99x + 101y=499$
   $101x+99y=501$
7. In what ratio is the join (4,3) and (2,-6) divided by the X- axis ? Also find the co-ordinates of the point of intersection.
8. If (3,3/4) is the mid-point of the line joining points (k,0) and (7,3/2), then find the value of k.

Answer any 6 (3 marks each)

9. Quadratic polynomial $2x^2+3x+1$ has zeroes as α and β. Now form a quadratic polynomial whose zeroes are 3α and 3β.
10. Divide $6x^3+2x^2-4x+3$ by $3x^2-2x+1$ and verify the division algorithm.
11. If α and β are the zeroes of $2x^2 – 4x+5$ find the value of : i) $\alpha^2 + \beta^2$, ii) $1/\alpha + 1/\beta$
12. Solve graphically : $4x – y =4$ and $3x + 2y =14$
13. Sum of the ages of a father and the son is 40 years. If father's age is three times that of his son, then find their respective ages.
14. Determine whether the points (1,5) , (2,3) and (-2,-11) are collinear or not.
15. Find a relation between x and y, such that the point (x, y) is equidistant from the points (3,6) and (-3,4).

16. A cow is tied with a rope of length 14 cm at the corner of a rectangular field of dimensions 20m × 16m. Find the area of the field in which the cow can graze.

Answer any two (4 marks each)

17. Solve 2x-y=1 , x+2y=13 graphically. Shade the triangular region formed by the lines and the Y-axis.
18. Find the co-ordinate of the points of trisection of the linear segment joining (-2,-3) and (4,-1).
19. Calculate the area and perimeter of the remaining portion, after cutting four quadrants (quarter circles) each of radius 7 cm from the four corners of a rectangle measuring 20 cm by 30 cm.