

FATHER AGNEL SCHOOL, NOIDA

TOPIC: POLYNOMIALS CLASS: IX SUBJECT: MATHEMATICS

1. Find the zeroes of the polynomial $P(x) = (x - 2)^2 - (x+2)^2$
2. Find the value of 'p' for which the polynomial $2x^4 + 3x^3 + 2px^2 + 3x + 6$ is exactly divisible by $(x+2)$
3. If the polynomial $2x^5 + mx^2 + 3x - 5$ and $x^3 + x^2 - 4x + m$ leaves the same remainder when divided by $x - 2$, then find the value of m.
4. Factorize $\frac{1}{27}x^3 - y^3 + 125z^3 + 5xyz$
5. Factorize (i) $(x^2 - 2x)^2 - 11(x^2 - 2x) + 24$ (ii) $x^3 - 3x^2 - 9x - 5$ (iii) $x^3 + 6x^2 + 11x + 6$
6. Without actual division, prove that $2x^4 - 8x^3 + 3x^2 + 12x - 9$ is exactly divisible by $x^2 - 4x + 3$.
7. If $x+y+z = 6$, find the value of $(2-x)^3 + (2-y)^3 + (2-z)^3 - 3(2-x)(2-y)(2-z)$
8. Simplify $(5a + 3b)^3 - (5a - 3b)^3$
9. The volume of a cube is given by the polynomial $P(x) = 8x^3 - 36x^2 + 54x - 27$. Find the possible expression for the side of the cube. Verify it when side of the cube is 3 cm.
10. Show that 2 and $(-\frac{1}{3})$ are the zeroes of the polynomial $3x^3 - 2x^2 - 7x - 2$

ANSWERS

- 1) 0 2) -1 3) $-\frac{13}{3}$ 4) $(\frac{1}{3}x - y + 5z)(\frac{1}{9}x^2 + y^2 + 25z^2 + \frac{1}{3}xy + 5yz - \frac{5}{3}zx)$ 5) (i) $(x - 4)(x+2)(x - 3)(x+1)$ (ii) $(x - 5)(x+1)(x+1)$
(iii) $(x+1)(x+2)(x+3)$ 6) --- 7) 0 8) 66 $(75a^2 + 9b^2)$ 9) $2x - 3$
10) _____