

1. If $x + y + z = 1$, $xyz = -1$ and $xy + yz + zx = -1$, find the value of $x^3 + y^3 + z^3$.
2. Simplify: $\frac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3}$
3. Factorise: $(x + 2)^3 + p^3 + 2p(x + 2)$
4. For what value of m is $x^3 - 2mx^2 + 16$ divisible by $(x + 2)$.
5. Factorise: $a^7 + ab^6$
6. If $a + b + c = 6$, find the value of $(2 - a)^3 + (2 - b)^3 + (2 - c)^3 - 3(2 - a)(2 - b)(2 - c)$
7. The polynomials $x^3 + 2x^2 - 5bx - 8$ and $x^3 + bx^2 - 12x - 11$ when divided by $(x - 2)$ and $(x - 3)$ leave remainder p and q respectively. If $(-p + q = 10)$, find the value of a .
8. The volume of a cuboid is a polynomial $p(x) = 8x^3 + 12x^2 - 2x - 3$. Find the possible expressions for the dimension of the cuboid. Verify the result by taking $x = 5$ units.
9. Factorise $x^3 - 6x^2 + 11x - 6$ using factor theorem.
10. Divide $x^3 + 4x^2 - 3x - 10$ by $x + 1$ and verify your remainder by Remainder Theorem.