

1. By using factor theorem, factorise: $x^3 + 13x^2 + 32x + 20$.
2. If the polynomial $bz^3 + 4z^2 + 3z - 4$ and $z^3 - 4z + b$ leave the same remainder when divided by $z - 3$, find the value of b .
3. Simplify: $(3x + 4y)^3 - (3x - 4y)^3 - 216x^2y$
4. Factorise: $343p^3 - 1331b^3$
5. If $\left(x + \frac{1}{x}\right) = 4$, find the value of $x^3 + \frac{1}{x^3}$
6. If $p(x) = x^3 + 3x^2 - 2x + 4$, find the value of $p(-2) + p(1) + p(0)$
7. Factorise: $7(2x - y)^2 - 25(x - 2y) + 12$
8. By using factor theorem, factorise: $x^3 + x^2 - 4x - 4$
9. If the polynomial $p(x) = x^4 - 2x^3 + 3x^2 - 9x - 7 + 3b$ when divided by $(x + 1)$, the remainder 29, find the value of b . Also find the remainder when divided by $(x - 2)$.
10. Given $a + b + c = 5$, $ab + bc + ca = 10$, then prove that $a^3 + b^3 + c^3 - 3abc = -25$