

1. Factorise: $8p^3 - q^3 - 12p^2q + 6pq^2$
2. Show that $(p - 1)$ is a factor of $p^{10} + p^8 + p^6 - p^4 - p^2 - 1$
3. Expand:
 - a. $\left(\frac{1}{x} + \frac{y}{3}\right)^3$
 - b. $\left(4 - \frac{1}{3x}\right)^3$
4. Factorise: $a^3(b - c)^3 + b^3(c - a)^3 + c^3(a - b)^3$
5. Factorise:
 - a. $8b^3 - \frac{1}{27}$
 - b. $p^3q^3 + \frac{343}{729}$
6. Factorise: $2x^3 + 9x^2 + 10x + 3$
7. Without actual division, prove that $2x^4 - 8x^3 + 3x^2 + 12x - 9$ is exactly divisible by $x^2 - 4x + 3$
8. If the polynomial $ax^3 + 4x^2 + 3x - 4$ and $x^3 - 4x + a$ leave the same remainder when divided by $(x - 3)$, find the value of a .