1. The polynomial $ax^3 + 3x^2 - 3$ and $2x^3 - 5x + a$ leave the same remainder when divided by $(x - 4)$. Find the value of a.

2. Show that $(x - 2)$ is a factor of $f(x) = 2x^3 - 3x^2 - 17x + 30$ and hence factorise $f(x)$.

3. Simplify: $\dfrac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3}$

4. Find the value of $(1^3 + 2^3 + 3^3)^{-\frac{3}{2}}$

5. For what value of m, is the polynomial $x^3 - 2m^2 + 16$ divisible by $(x + 2)$?

6. Without actually calculating the cubes, find the value of $(-12)^3 + (7)^3 + (5)^3$

7. Factorise: $(a^2 - 3a)^2 - 14(a^2 - 3a) + 40$

8. If $p = 2 - a$, prove that $a^3 + 6ap + p^3 - 8 = 0$

9. If the polynomial $3x^3 + kx^2 + 2x - 3$ leaves a remainder 5, when divided by $(x - 2)$, find the value of k, using Remainder Theorem. Is $(x + 1)$ a factor of this polynomial?

10. If the polynomials $az^3 + 4z^2 + 3z - 4$ and $z^3 - 4z + a$ leave the same remainder when divided by $(z - 3)$, find a.