POLYNOMIALS **SET 1**

1 *(a)* Show that $(x - 3)$ is a factor of $f(x)$, where $f(x) = 2x^3 + 3x^2 - 23x - 12$.

(b) Hence express $f(x)$ in its fully factorised form.

2 Factorise fully:

(a) $3a^3 - a^2 - 20a - 12$ *(b)* $m^4 - m$

3 $t^3 - 5t^2 + kt - 6$ has value –2 when $t = 2$. Find k.

4 Solve $4x^3 - 9x^2 - 3x + 10 = 0$

5 Find the quotient and remainder when $2x^3 + 6x - 12$ is divided by $(x + 2)$.

6 When the polynomial $f(x) = 2x^3 + px^2 + qx + 5$ is divided by $(x - 3)$ the remainder is –4.
When $f(x)$ is divided by $(x - 1)$, the remainder is –2.
Find the values of p and q.

7 Show that the equation $4x^3 - 5x - 14$ has a root between 1 and 2 and find this root correct to one decimal place.