Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

$p(2) = 8 + 4 - 7 = \mathbf{5}$

2.2

$8 + 4a + 2b - 6 = 0$ and $-1 + a - b - 6 = -12$; $2a + b = -1$, $a - b = -5$; $a = \mathbf{-2}$, $b = \mathbf{3}$

3.1

(a) $p(2) = 16 + 4 - 26 + 6 = 0$, so $(x - 2)$ is a factor

(b) $p(x) = (x - 2)(2x^2 + 5x - 3)$; $= (\mathbf{x - 2})(\mathbf{2x - 1})(\mathbf{x + 3})$

(c) roots -3, $\frac{1}{2}$, 2; $\mathbf{x < -3}$ or $\mathbf{\frac{1}{2} < x < 2}$

3.2

(a) $1 + 2 + \gamma = 6$; $\gamma = \mathbf{3}$

(b) product $= 1 \times 2 \times 3 = 6 = -\dfrac{-6}{1}$

(c) $k = 1 \cdot 2 + 1 \cdot 3 + 2 \cdot 3 = \mathbf{11}$

(d) $(0, -6)$

(e) $\mathbf{1 < x < 2}$ or $\mathbf{x > 3}$

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