

Solutions

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

2.1

- $2x - 1 = \pm 7$; $x = 4$ or $x = -3$

2.2

- $p(2) = 8 - 4 + 5 = 9$

3.1 B

- $p(3) = 27 - 36 + 3 + c = 0 \Rightarrow c = 6$

3.2

- square both sides: $(x+2)^2 > (x-4)^2$; $x^2 + 4x + 4 > x^2 - 8x + 16 \Rightarrow 12x > 12$; $x > 1$

3.3

(a)

- factor $(x-1)$: $p(1) = 1 + a + b + 6 = 0 \Rightarrow a + b = -7$; remainder $p(-1) = -1 + a - b + 6 = 8 \Rightarrow a - b = 3$; add the equations: $2a = -4$, so $a = -2$, $b = -5$

(b)

- $p(x) = x^3 - 2x^2 - 5x + 6$; divide by $(x-1)$ to get $x^2 - x - 6$; $x^2 - x - 6 = (x-3)(x+2)$; so $p(x) = (x-1)(x-3)(x+2)$