

Solutions

Marking: **M1** a correct method, **A1** the correct answer.

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

2.1

- $3x(2x - 5) = 6x^2 - 15x$

2.2

- $6a + 9ab = 3a(2 + 3b)$

2.3

- $x^2 - 5x + 2x - 10$
- $x^2 - 3x - 10$

2.4

- common factor 3: $3(4x^2 - 9)$
- difference of two squares: $3(2x + 3)(2x - 3)$

2.5

- $a(b + 4) + 3(b + 4)$
- $(a + 3)(b + 4)$

3.1

- $x^2 - 49 = (x + 7)(x - 7)$

3.2

- two numbers multiplying to -10 and adding to 3 are 5 and -2
- $(x + 5)(x - 2)$

3.3

- $a \times c = -6$, numbers 6 and -1
- $2x^2 + 6x - x - 3 = 2x(x + 3) - (x + 3) = (2x - 1)(x + 3)$

3.4

(a)

- common factor 2: $2(9x^2 - 4)$
- difference of two squares
- $2(3x + 2)(3x - 2)$

(b)

- numbers multiplying to 18 and adding to -11 are -9 and -2
- $3x^2 - 9x - 2x + 6 = 3x(x - 3) - 2(x - 3)$

- $(3x - 2)(x - 3)$

(c)

- numerator $= (x + 3)(x - 3)$
- denominator $= (x + 4)(x - 3)$
- cancel $(x - 3)$: $\frac{x + 3}{x + 4}$

(d)

- $\frac{x + 3}{x + 4} = 2$ so $x + 3 = 2(x + 4)$
- $x + 3 = 2x + 8$
- $x = -5$