

## Solutions

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

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

### 2.1

- $3x = 18$
- **$x = 6$**

### 2.2

- $(x + 2)(x + 3) = 0$
- **$x = -2$  or  $x = -3$**

### 2.3

- $4x - 4 = 2x + 6$  so  $2x = 10$
- **$x = 5$**

### 2.4

- $(x - 3)(x - 4) = 0$
- **$x = 3$  or  $x = 4$**

### 2.5

- **$a = 3, b = -5, c = -2$**

### 3.1

- add the two equations:  $4x = 16$  so  $x = 4$
- $4 - 2y = 4$  so  **$y = 0$**

### 3.2

- $(x - 4)(x + 2) = 0$
- **$x = 4$  or  $x = -2$**

### 3.3

- $a = 2, b = 3, c = -4$

$$x = \frac{-3 \pm \sqrt{9 + 32}}{4} = \frac{-3 \pm \sqrt{41}}{4}$$

- **$x = 0.85$  or  $x = -2.35$**

### 3.4

(a)

- substitute  $y = x + 3$ :  $x^2 + (x + 3)^2 = 29$
- $2x^2 + 6x - 20 = 0$  so  $x^2 + 3x - 10 = 0$
- $(x + 5)(x - 2) = 0$
- **$x = -5$  or  $x = 2$**

- matching  $y = -\mathbf{2}$  and  $y = \mathbf{5}$

(b)

- $(3x - 1)(x - 2) = 0$
- $\mathbf{x} = \frac{1}{3}$  or  $\mathbf{x} = \mathbf{2}$

(c)

- $a = 1, b = 6, c = 4$

$$x = \frac{-6 \pm \sqrt{36 - 16}}{2}$$

- $\sqrt{20} = 4.472$
- $\mathbf{x} = -\mathbf{0.76}$  or  $\mathbf{x} = -\mathbf{5.24}$