Solutions

Award method and answer marks as indicated; accept equivalent correct methods.

2.1

- Collect each letter: $3p + 4q$.

2.2

- Multiply both terms: $12y^2 - 8y$.

2.3

- Four products give $x^2 + 2x + 4x + 8 = \boldsymbol{x^2 + 6x + 8}$.

2.4

- Take out $5a$: $5a(3a - 2b)$; expanding returns the original.

3.1

(a)

- $A = (x + 5)(x + 1) = \boldsymbol{x^2 + 6x + 5}$ cm^2.

(b)

- $A = 3^2 + 6(3) + 5 = \mathbf{32}$ cm^2; also $8 \times 4 = 32$.

(c)

- Common factor $6x$ gives $6x(x + 4)$; expansion is $6x^2 + 24x$.

3.2

(a)

- Use $A = lw = (2x + 3)(x + 2)$.
- Expand $A = \mathbf{2x^2 + 7x + 6}$.
- At $x = 2$, $A = 8 + 14 + 6 = \mathbf{28}$ cm^2.

(b)

- Divide both terms by the common factor $3x$: $6x^2 + 9x = \mathbf{3x(2x + 3)}$.
- Expanding gives $6x^2 + 9x$; the proposed expression instead gives $6x^2 + 27x$.

3.3

- Expand each bracket: $6x - 3 - 2x + 8$; note $-2 \times (-4) = +8$.
- $\boldsymbol{4x + 5}$.

3.4

(a)

- The highest common factor of $8ab$ and $12a^2$ is $4a$.
- $\boldsymbol{4a(2b - 3a)}$.

(b)

- Multiply each term by each term: $x^2 + 7x - 3x - 21$.
- $\boldsymbol{x^2 + 4x - 21}$.