



eClassroom

GCSE Mathematics

Simplifying & Expanding

Questions

Pearson Edexcel GCSE & iGCSE Mathematics



Section A — Foundation

Worked Examples

[Fluency]

Simplify: $3x + 2y + x - y$

$$3x + x + 2y - y = 4x + y$$

[Reasoning]

Expand and simplify: $(x + 3)(x + 4)$

$$x^2 + 4x + 3x + 12 = x^2 + 7x + 12$$

[Problem Solving]

Expand and simplify: $(x + 3)^2$

$$(x + 3)(x + 3) = x^2 + 3x + 3x + 9 = x^2 + 6x + 9$$

[Fluency]

1. Simplify: $3x + 2y + x - y$

(2 marks)

[Fluency]

2. Simplify: $5a - 2b + 3a + b$

(2 marks)

[Fluency]

3. Expand: $3(2x + 5)$

(2 marks)

[Fluency]

4. Expand and simplify: $4(x + 2) + 3(x - 1)$

(3 marks)

[Fluency]

5. Expand and simplify: $(x + 3)(x + 4)$

(2 marks)

[Fluency]

6. Expand and simplify: $(x - 2)(x + 5)$

(2 marks)





[Reasoning]

7.

Expand and simplify: $(x + 3)^2$

(2 marks)

[Reasoning]

8.

Expand and simplify: $(x - 4)^2$

(2 marks)

[Reasoning]

9.

Show that $(x + 5)(x - 5) = x^2 - 25$.

(2 marks)

[Problem Solving]

10.

The area of a rectangle is $(x + 3)(x - 1)$ cm².

Show that the area can be written as $x^2 + 2x - 3$.

(3 marks)



Section B — Higher

Worked Examples

[Fluency]

Expand and simplify: $(2x + 3)(3x - 1)$

$$6x^2 - 2x + 9x - 3 = \mathbf{6x^2 + 7x - 3}$$

[Reasoning]

Expand and simplify: $(x + 1)(x + 2)(x + 3)$

$$(x + 1)(x^2 + 5x + 6) = x^3 + 5x^2 + 6x + x^2 + 5x + 6 = \mathbf{x^3 + 6x^2 + 11x + 6}$$

[Problem Solving]

Expand and simplify: $(3x - 2)^2$

$$9x^2 - 12x + 4$$

[Fluency]

1. Expand and simplify: $(2x + 3)(3x - 1)$

(3 marks)

[Fluency]

2. Expand and simplify: $(3x - 2)^2$

(3 marks)

[Fluency]

3. Expand and simplify: $(x + 1)(x + 2)(x + 3)$

(3 marks)

[Reasoning]

4.

Show that $(2x + 1)(x - 3) + 5 = (x - 1)(2x + 2)$.

(3 marks)

[Reasoning]

5.

Expand and simplify: $(x + y)^2 + (x - y)^2$

What do you notice about your answer?

(4 marks)



**[Reasoning]****6.**

Show that $(n + 1)^2 - (n - 1)^2 = 4n$ for all integer values of n .

(3 marks)**[Problem Solving]****7.**

A square has side length $(2x + 1)$ cm. A smaller square of side x cm is removed from the corner.
Write and simplify an expression for the remaining area.

(4 marks)**[Problem Solving]****8.**

Expand and simplify: $(x + 2)^3$

(3 marks)**[Problem Solving]****9.**

Show that $(a + b)(a - b) + (b + c)(b - c) + (c + a)(c - a) = 0$

(4 marks)**[Problem Solving]****10.**

A rectangle has area $x^2 + 5x - 14$. One side has length $(x - 2)$.
Find an expression for the other side.

(3 marks)