

Quadratics and Formulae

ANSWERS

Calculator | 30 minutes | Total marks: 24

Name Class

1 Simplify

(a) $3x^2 + 2x^2$

Answer $5x^2$ (1) [1 mark]

(b) $x^2 + 4x + 3x$

Answer $x^2 + 7x$ (1) [1 mark]

2 Complete the grid to expand and simplify $(x + 2)(x + 5)$

$\times$	x	$+ 2$
x	x^2	$+ 2x$
$+ 5$	$+ 5x$ (1)	$+ 10$ (1)

$(x + 2)(x + 5) =$ $x^2 + 7x + 10$ (1) [3 marks]

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

$x^2 + 4x + 3x + 12$ (1)

Answer $x^2 + 7x + 12$ (1) [2 marks]

4

- (a) Find two numbers that multiply to make 6 and add to make 5

Answer 2 and 3 (1) [1 mark]

- (b) Use your answer to factorise.
- $x^2 + 5x + 6 = (x + \boxed{2})(x + \boxed{3})$
- (1)

[1 mark]

- (c) Factorise
- $x^2 + 6x + 8$

$$2 \times 4 = 8 \text{ and } 2 + 4 = 6 \text{ (1)}$$

Answer $(x + 2)(x + 4)$ (1) [2 marks]

- (d) Factorise
- $x^2 + 9x + 20$

$$4 \times 5 = 20 \text{ and } 4 + 5 = 9 \text{ (1)}$$

Answer $(x + 4)(x + 5)$ (1) [2 marks]

5

- (a) Solve
- $(x - 2)(x - 5) = 0$

 $x =$ 2 or 5 (1)(1) [2 marks]

- (b) Solve
- $x^2 + 3x + 2 = 0$

$$(x + 1)(x + 2) = 0 \text{ (1)(1)}$$

 $x =$ -1 or -2 (1) [3 marks]

6

- (a) Make
- x
- the subject of
- $y = x + 7$

 $x =$ $y - 7$ (1) [1 mark]

- (b) Make
- x
- the subject of
- $y = 3x$

 $x =$ $\frac{y}{3}$ (1) [1 mark]

- (c) Make
- x
- the subject of
- $y = 2x + 1$

$$y - 1 = 2x \text{ (1)}$$

 $x =$ $\frac{y - 1}{2}$ (1) [2 marks]

7

Write equation or identity next to each of these.

$x + 4 = 10$

equation (1)

$x + x = 2x$

identity (1)

[2 marks]

Question	Topic	RAG
1	I can collect like terms with powers	
2	I can expand double brackets using a grid	
3	I can expand and simplify double brackets	
4	I can factorise a quadratic	
5	I can solve a quadratic equation	
6	I can change the subject of a formula	
7	I know the difference between an equation and an identity	