

Algebraic Expressions

ANSWERS

Calculator | 30 minutes | Total marks: 30

Name _____ Class _____

1 Simplify

(a) $5a + 3a - 2a$

Answer 6a (1) [1 mark]

(b) $4x + 7y - x + 2y$

3x (1)

Answer 3x + 9y (1) [2 marks]

2 Simplify

(a) $3p \times 4q$

Answer 12pq (1) [1 mark]

(b) $y \times y$

Answer y^2 (1) [1 mark]

(c) $\frac{12m}{4}$

Answer 3m (1) [1 mark]

3 Write one word from the box next to each of these.

expression	equation	formula	inequality
$x + 7 > 10$	<u>inequality</u>	$4y - 1$	<u>expression</u>
$P = 2l + 2w$	<u>formula</u>	$2x = 18$	<u>equation</u>

All four correct scores 2 marks. Two or three correct scores 1 mark. [2 marks]

4

- (a) A pen costs p pence. A ruler costs r pence.

Write an expression for the total cost, in pence, of 3 pens and 2 rulers.

Answer $3p + 2r$ (1)

[1 mark]

- (b) Sam is n years old. Tia is 4 years younger than Sam.

Write an expression for Tia's age.

Answer $n - 4$ (1)

[1 mark]

5

$$a = 5 \quad b = -2 \quad c = 3$$

- (a) Work out the value of $ab + c$

$$5 \times -2 + 3 \text{ (1)}$$

Answer -7 (1)

[2 marks]

- (b) Work out the value of $a^2 - 4c$

$$25 - 12 \text{ (1)}$$

Answer 13 (1)

[2 marks]

6

Expand

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

Answer $4x + 12$ (1)

[1 mark]

- (b) $y(y - 5)$

Answer $y^2 - 5y$ (1)

[1 mark]

- (c) $3a(2a + b)$

Answer $6a^2$ (1) + $3ab$ (1)

[2 marks]

7

Expand and simplify $5(2y + 1) - 3(y - 2)$

$$10y + 5 \text{ (1)}$$

$$- 3y + 6 \text{ (1)}$$

Answer $7y + 11$ (1)

[3 marks]

8

(a) Factorise $6x + 15$ Answer $3(2x + 5)$ (1)

[1 mark]

(b) Factorise $y^2 - 4y$ Answer $y(y - 4)$ (1)

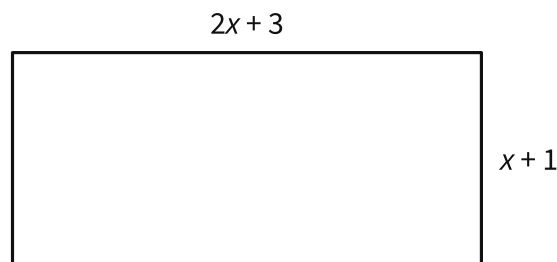
[1 mark]

(c) Factorise fully $8ab + 12a$ Partly factorised, such as $2a(4b + 6)$, scores 1 markAnswer $4a(2b + 3)$ (1)(1)

[2 marks]

9

Here is a rectangle.



Not drawn accurately

Write an expression for the perimeter of the rectangle.

Give your answer in its simplest form.

$$2x + 3 + x + 1 + 2x + 3 + x + 1 \text{ (1)}$$

$$6x \text{ (1)}$$

Answer $6x + 8$ (1)

[3 marks]

10 Expand and simplify $(x + 2)(x + 5)$

$$x^2 + 5x + 2x + 10 \text{ (1)}$$

Answer $x^2 + 7x + 10 \text{ (1)}$

[2 marks]

Question	Topic	RAG
1	I can simplify expressions by collecting like terms	
2	I can simplify expressions by multiplying and dividing	
3	I know the difference between an expression, an equation, a formula and an inequality	
4	I can write an expression from words	
5	I can substitute numbers into expressions, including negatives	
6	I can expand a single bracket	
7	I can expand and simplify two brackets	
8	I can factorise an expression	
9	I can write and simplify an expression for a perimeter	
10	I can expand and simplify double brackets	