

Expressions, Equations and Formulae

ANSWERS

No calculator | 30 minutes | Total marks: 27

Name _____ Class _____

1

Expand

(a) $3(x + 4)$

Answer $3x + 12$ (1) [1 mark]

(b) $5(2y - 3)$

Answer $10y - 15$ (1) [1 mark]

(c) $x(x + 6)$

Answer $x^2 + 6x$ (1) [1 mark]

2

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

expression	equation	formula	identity
$3x + 5 = 20$	<u>equation</u>	$7a - 2$	<u>expression</u>
$V = lwh$	<u>formula</u>	$2(x + 1) \equiv 2x + 2$	<u>identity</u>

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

3

(a) $P = 2l + 2w$

Work out the value of P when $l = 7$ and $w = 4$

$2 \times 7 + 2 \times 4$ (1)

$P =$ 22 (1) [2 marks]

(b) $v = u + at$

Work out the value of v when $u = 3$, $a = 2$ and $t = 5$

$3 + 2 \times 5$ (1)

$v =$ 13 (1) [2 marks]

4

Solve

(a) $x + 9 = 15$

$x = 6$ (1) [1 mark]

(b) $4x = 28$

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

(c) $\frac{x}{3} = 5$

$x = 15$ (1) [1 mark]

(d) $2x + 3 = 17$

$2x = 14$ (1)

$x = 7$ (1) [2 marks]

(e) $5x - 4 = 21$

$5x = 25$ (1)

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

5

Factorise

(a) $4x + 12$

Answer $4(x + 3)$ (1) [1 mark]

(b) $6y - 9$

Answer $3(2y - 3)$ (1) [1 mark]

6

Complete the grid to expand and simplify $(x + 3)(x + 4)$

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

$(x + 3)(x + 4) = x^2 + 7x + 12$ (1) [2 marks]

7

Ali thinks of a number, n .

He multiplies his number by 3 and then adds 5

His answer is 26

(a) Write an equation in terms of n .

Answer $3n + 5 = 26$ (1)

[1 mark]

(b) Solve your equation to find Ali's number.

$3n = 21$ (1)

$n = 7$ (1)

[2 marks]

8

A taxi charges £3 plus £2 for each mile.

Write a formula for the cost, C pounds, of a journey of m miles.

$2m$ or $3 + \dots$ seen (1)

Answer $C = 3 + 2m$ (1)

[2 marks]

9

(a) Make x the subject of $y = x + 5$

$$x = y - 5 \quad (1) \quad [1 \text{ mark}]$$

(b) Make x the subject of $y = 4x$

$$x = \frac{y}{4} \quad (1) \quad [1 \text{ mark}]$$

Question	Topic	RAG
1	I can expand a single bracket	
2	I know the difference between an expression, an equation, a formula and an identity	
3	I can substitute into a formula	
4	I can solve one step and two step equations	
5	I can factorise an expression	
6	I can expand double brackets	
7	I can set up and solve an equation	
8	I can write a formula	
9	I can change the subject of a simple formula	