

Formulae

ANSWERS

Calculator | 30 minutes | Total marks: 27

Name _____ Class _____

1 Pay = hours worked $\times$ hourly rate + bonus

Sam works for 6 hours at an hourly rate of £9 and gets a bonus of £15

Work out Sam's pay.

$$6 \times 9 + 15 \text{ (1)}$$

Answer £ 69 (1) [2 marks]

2 $a = 4$ $b = -3$ $c = 5$

Work out the value of

(a) $3a + 2b$

Answer 6 (1) [1 mark]

(b) ab

Answer -12 (1) [1 mark]

(c) $b^2 + c$

$$9 + 5 \text{ (1)}$$

Answer 14 (1) [2 marks]

(d) $2a^3$

$$2 \times 64 \text{ (1)}$$

Answer 128 (1) [2 marks]

(e) $\frac{a+c}{b}$

Answer -3 (1) [1 mark]

3

$$v = u + at$$

- (a) Work out the value of v when $u = 5$, $a = 3$ and $t = 4$

$$5 + 3 \times 4 \text{ (1)}$$

$$v = \underline{17 \text{ (1)}} \quad [2 \text{ marks}]$$

- (b) Work out the value of t when $v = 26$, $u = 2$ and $a = 4$

$$26 = 2 + 4t \text{ (1)}$$

$$24 = 4t \text{ (1)}$$

$$t = \underline{6 \text{ (1)}} \quad [3 \text{ marks}]$$

4

A plumber charges a £40 call out fee plus £25 for each hour worked.

- (a) Write a formula for the total charge, £ C , for a job that takes h hours.

$$25h \text{ seen (1)}$$

$$\text{Answer } \underline{C = 40 + 25h \text{ (1)}} \quad [2 \text{ marks}]$$

- (b) The total charge for a job is £165

Work out how many hours the job took.

$$125 \div 25 \text{ (1)}$$

$$\text{Answer } \underline{5 \text{ (1)}} \text{ hours} \quad [2 \text{ marks}]$$

5

A rectangle has a length of $(x + 3)$ cm and a width of x cm.

Write an expression, in its simplest form, for the perimeter of the rectangle.

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

$$\text{Answer } \underline{4x + 6 \text{ (1)}} \quad [2 \text{ marks}]$$

6

(a) Make x the subject of $y = x - 8$

$$x = y + 8 \quad (1) \quad [1 \text{ mark}]$$

(b) Make w the subject of $A = lw$

$$w = \frac{A}{l} \quad (1) \quad [1 \text{ mark}]$$

(c) Make x the subject of $y = 3x + 4$

$$y - 4 = 3x \quad (1)$$

$$x = \frac{y - 4}{3} \quad (1) \quad [2 \text{ marks}]$$

(d) Make x the subject of $A = x^2$

$$x = \sqrt{A} \quad (1) \quad [1 \text{ mark}]$$

(e) Make l the subject of $P = 2(l + w)$

$$\frac{P}{2} = l + w \quad (1)$$

$$l = \frac{P}{2} - w \quad (1) \quad [2 \text{ marks}]$$

Question	Topic	RAG
1	I can use a formula written in words	
2	I can substitute into expressions, including negatives and powers	
3	I can use a formula and find a value that is not the subject	
4	I can write and use a formula	
5	I can write an expression for a situation	
6	I can change the subject of a formula	