

1.**[2 marks]**

The word formula gives the time, in minutes, needed to cook a turkey.

$$\text{Time} = 40 \times \text{weight in kg} + 20$$

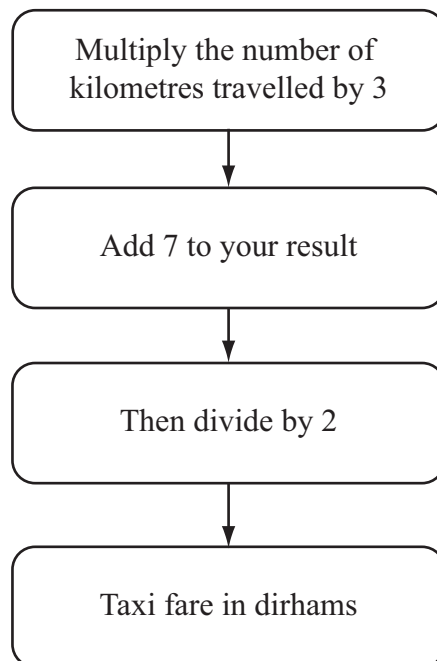
A time of T minutes is needed to cook a turkey with a weight of W kg.

Write down a formula for T in terms of W .

.....

2.**[3 marks]**

This rule can be used to work out the fare, in dirhams, for a taxi journey in Dubai.



Find a formula for the fare, C dirhams, for a taxi journey of d kilometres.

.....

3.**[2 marks]**

$$a = 6 \quad b = 2.84 \quad c = \sqrt{5}$$

Work out the value of $\frac{a - b}{c^2}$

4.**[3 marks]**

Work out the value of $\frac{a(b + 1)}{16}$ when $a = 6$ and $b = -9$

.....

5.**[3 marks]**

$$f = \frac{uv}{u + v}$$

Work out the value of f when $u = 5.7$ and $v = -7.6$

$f =$

6.

[2 marks]

$$D = 3e^2 + 4e$$

Work out the value of D when $e = -5$

$$D = \dots\dots\dots$$

7.

[4 marks]

$$m = -3$$

$$n = -4$$

(a) Work out the value of $3m^2 + 5n$

.....
(2)

There are 4 batteries in a small pack of batteries.

There are 12 batteries in a large pack of batteries.

Lottie buys x small packs of batteries and y large packs of batteries.

She buys a total of T batteries.

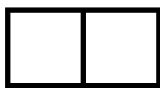
(b) Write down a formula for T in terms of x and y .

.....
(2)

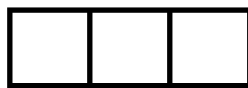
Here is a pattern of shapes made from centimetre squares.



Shape
number 1



Shape
number 2



Shape
number 3

This rule can be used to find the perimeter of a shape in this pattern.

Add 1 to the Shape number and then multiply your answer by 2

P cm is the perimeter of Shape number n .

(a) Write down a formula for P in terms of n .

.....
(3)

(b) Make n the subject of the formula in part (a).

$n =$
(3)

9.**[5 marks]**

$$M = 3x^2 - nx$$

(a) Work out the value of M when

$$x = -2 \text{ and } n = 5$$

$$M = \dots\dots\dots$$

(2)

(b) Work out the value of n when

$$M = 12 \text{ and } x = 4$$

$$n = \dots\dots\dots$$

(3)

10.**[2 marks]**

$$y = 4x - 1$$

Work out the value of x when $y = -7$

$$x = \dots\dots\dots$$

11.**[5 marks]**

$$A = 2x^2 + kx$$

(a) $x = -3$
 $k = 4$

Work out the value of A .

$$A = \dots\dots\dots$$

(2)

(b) $A = 38$
 $x = 4$

Work out the value of k .

$$k = \dots\dots\dots$$

(3)

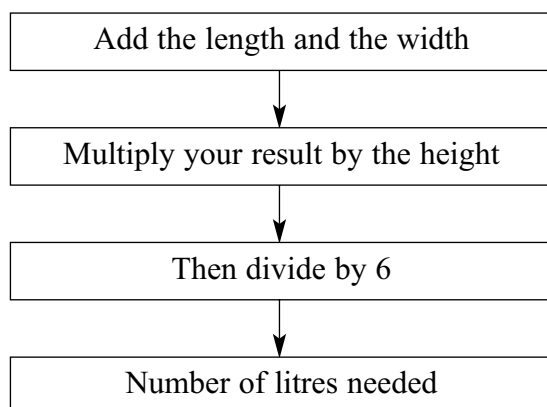
12.**[3 marks]**

$$f = 5p - 4v$$

Work out the value of p when $f = -22$ and $v = -5$

$$p = \dots\dots\dots$$

This rule can be used to work out the number of litres of paint needed to cover the walls of a room, using the length, width and height, in metres, of the room.



A room has length L metres, width W metres and height H metres.
 N litres of paint are needed to cover the walls of the room.

- (a) Find a formula for N in terms of L , W and H .

.....
 (3)

The perimeter of the room is P metres.

- (b) Find a formula for N in terms of P and H .

.....
 (2)

$$Q = 4g^2 - 3h$$

- (a) Work out the value of Q when

$$g = -3 \text{ and } h = 3$$

$$Q = \dots\dots\dots (2)$$

- (b) Work out the value of h when

$$Q = 22 \text{ and } g = 5$$

$$h = \dots\dots\dots (3)$$

- (c) Make g the subject of the formula $Q = 4g^2 - 3h$

$$g = \dots\dots\dots (3)$$