1. **[2 marks]**

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

Time = 40 × weight in kg + 20

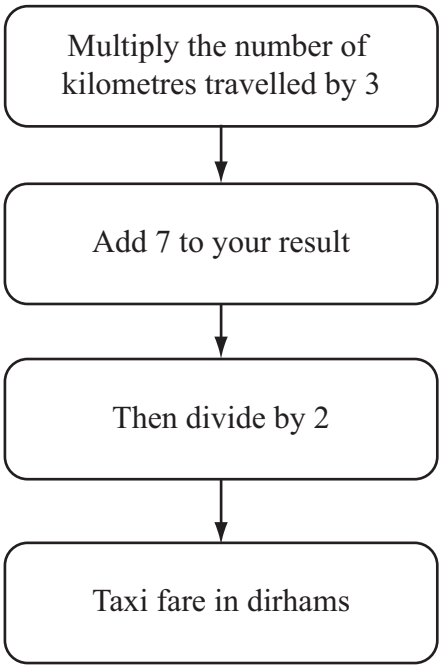
A time of T minutes is needed to cook a turkey with a weight of W kg.

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]**

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

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

4. **[3 marks]**

Work out the value of $\dfrac{a(b + 1)}{16}$ 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 $e = -5$

$D =$ .....

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)

8. **[6 marks]**

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

$x = -2$ and $n = 5$

$M =$ .....

(2)

(b) Work out the value of n when

$M = 12$ and $x = 4$

$n =$ .....

(3)

10. **[2 marks]**

$y = 4x - 1$

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

$x =$ .....

11. **[5 marks]**

$A = 2x^2 + kx$

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

Work out the value of A.

$A =$ .....

(2)

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

Work out the value of k.

$k =$ .....

(3)

12. **[3 marks]**

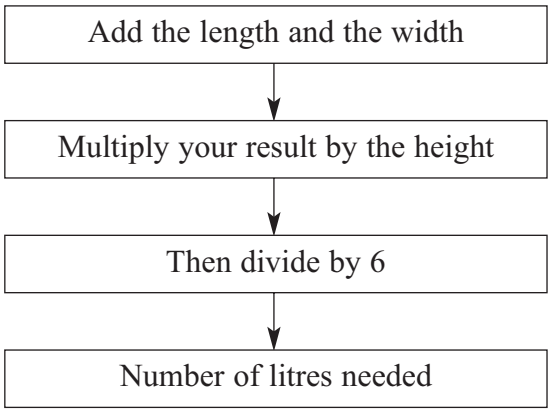
$f = 5p - 4v$

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

$p =$ .....

13. **[5 marks]**

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)

14. **[8 marks]**

$Q = 4g^2 - 3h$

(a) Work out the value of Q when

$g = -3$ and $h = 3$

$Q =$ .....

(2)

(b) Work out the value of h when

$Q = 22$ and $g = 5$

$h =$ .....

(3)

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

$g =$ .....

(3)