

1. $P = 3n$
 $n = 6$

(a) Work out the value of P .

$$3(6)$$

$$P = \dots\dots\dots 18 \dots\dots\dots \quad (1)$$

$$Q = 2c + d$$

$$c = 3$$

$$d = 2$$

(b) Work out the value of Q .

$$2(3) + 2$$

$$6 + 2$$

$$Q = \dots\dots\dots 8 \dots\dots\dots \quad (2)$$

(Total 3 marks)

2. $p = 5$
 $r = 2$

(a) Work out the value of

$$4p + 3r$$

$$4(5) + 3(2)$$

$$20 + 6$$

$$\dots\dots\dots 26 \dots\dots\dots \quad (2)$$

n is an even number.

(b) What type of number is $n + 1$?

$$\dots\dots\dots \text{odd} \dots\dots\dots \quad (1)$$

(Total 3 marks)

3. $y = 5x - 3$

Find the value of y when $x = 9$

$$\begin{aligned} 5(9) - 3 \\ 45 - 3 \end{aligned}$$

$y = \dots\dots\dots 42 \dots\dots\dots$

(2)

(Total 2 marks)

4. $P = 4k - 10$

$k = 7$

(a) Work out the value of k .

$$\begin{aligned} 4(7) - 10 \\ 28 - 10 \end{aligned}$$

$\dots\dots\dots 18 \dots\dots\dots$

(2)

$y = 4n - 3d$

$n = 2$

$d = 5$

(b) Work out the value of y .

$$\begin{aligned} 4(2) - 3(5) \\ 8 - 15 \end{aligned}$$

$\dots\dots\dots -7 \dots\dots\dots$

(2)

(Total 4 marks)

5. $v = u + 10t$

Work out the value of v when

$u = 10$ and $t = 7$

$$\begin{aligned} 10 + 10(7) \\ 10 + 70 \end{aligned}$$

$v = \dots\dots\dots 80 \dots\dots\dots$

(Total 2 marks)

6.



Take two 5 ml spoons full
twice a day

You can work out the amount of medicine, c ml, to give to a child by using the formula

$$c = \frac{ma}{150}$$

m is the age of the child, in months.
 a is an adult dose, in ml.

A child is 30 months old.
An adult's dose is 40 ml.

Work out the amount of medicine you can give to the child.

$$\frac{(30)(40)}{150} = \frac{1200}{150}$$

.....8..... ml

(Total 2 marks)

7. $V = 3b + 2b^2$

Find the value of V when $b = 4$

$$\begin{aligned} &3(4) + 2(4)^2 \\ &12 + 2(16) \\ &12 + 32 \end{aligned}$$

.....44.....

(Total 2 marks)

8. (a) Work out the value of $3p + 4q$ when $p = 5$ and $q = -2$

$$\begin{array}{r} 3(5) + 4(-2) \\ 15 \quad -8 \end{array} \quad \dots\dots\dots 7 \dots\dots\dots$$

(2)

- (b) Given that $y = 4x - 3$, work out the value of x when $y = 11$

$$\begin{array}{l} 11 = 4x - 3 \\ 14 = 4x \\ x = 3.5 \end{array} \quad x = \dots\dots\dots 3.5 \dots\dots\dots$$

(3)
(Total 5 marks)

9. Work out the value of $5x + 1$ when $x = -3$

$$\begin{array}{r} 5(-3) + 1 \\ -15 + 1 \end{array} \quad \dots\dots\dots -14 \dots\dots\dots$$

(2)
(Total 2 marks)

10. (a) Work out the value of $3x - 4y$ when $x = 3$ and $y = 2$

$$\begin{array}{r} 3(3) - 4(2) \\ 9 - 8 \end{array} \quad \dots\dots\dots 1 \dots\dots\dots$$

(2)

- (b) Work out the value of $\frac{p(q-3)}{4}$ when $p = 2$ and $q = -7$

$$\begin{array}{r} \frac{2((-7)-3)}{4} \\ \frac{2(-10)}{4} \\ \frac{-20}{4} \end{array} \quad \dots\dots\dots -5 \dots\dots\dots$$

(3)
(Total 5 marks)

11. $S = 2p + 3q$

$p = -4$
 $q = 5$

$2(-4) + 3(5)$
 $-8 + 15$

(a) Work out the value of S .

$S = \dots\dots\dots 7 \dots\dots\dots$ (2)

$T = 2m + 30$

$T = 40$

$40 = 2m + 30$
 $10 = 2m$
 $m = 5$

(b) Work out the value of m .

$m = \dots\dots\dots 5 \dots\dots\dots$ (2)
(Total 4 marks)

12. $A = 4bc$

$A = 100$
 $b = 2$

$100 = 4(2)c$
 $100 = 8c$
 $c = 12.5$

Work out the value of c .

$c = \dots\dots\dots 12.5 \dots\dots\dots$ (2)
(Total 2 marks)

13. (a) Work out the value of $2a + ay$ when $a = 5$ and $y = -3$

$$2(5) + (5)(-3)$$
$$10 - 15$$

$$\dots\dots\dots -5 \dots\dots\dots$$

(2)

(b) Work out the value of $5t^2 - 7$ when $t = 4$

$$5(4)^2 - 7$$
$$5(16) - 7$$
$$80 - 7$$

$$\dots\dots\dots 73 \dots\dots\dots$$

(3)

(Total 5 marks)

14. $A = \frac{h(x+10)}{2}$

$A = 27$

$h = 4$

Work out the value of x

$$27 = \frac{4(x+10)}{2}$$

$$27 = 2(x+10)$$

$$27 = 2x + 20$$

$$7 = 2x$$

$$x = 3.5$$

$$x = \dots\dots\dots 3.5 \dots\dots\dots$$

(Total 3 marks)

15. $h = 5t^2 + 2$

(i) Work out the value of h when $t = -2$

$$5(-2)^2 + 2$$

$$5(4) + 2$$

$$20 + 2$$

$$\begin{array}{r} 22 \\ \hline \end{array} \quad (3)$$

(ii) Work out a value of t when $h = 47$

$$47 = 5t^2 + 2$$

$$45 = 5t^2$$

$$9 = t^2$$

$$t = 3 \quad (\text{or } -3)$$

$$\begin{array}{r} 3 \\ \hline \end{array} \quad (3)$$

(Total 5 marks)

16. $V = 3b + 2b^2$

Find the value of V when $b = -4$

$$3(-4) + 2(-4)^2$$

$$-12 + 2(16)$$

$$-12 + 32$$

$$\begin{array}{r} 20 \\ \hline \end{array} \quad (3)$$

(Total 3 marks)