

Substitution

ANSWERS

1

Work out the value of $3a + 2b$ when $a = 4$, $b = 5$.

$$\begin{aligned} &= 3(4) + 2(5) \\ &= 12 + 10 \\ &= 22 \end{aligned}$$

Answer 22

2

Work out the value of $5x - y$ when $x = 3$, $y = 7$.

$$\begin{aligned} &= 5(3) - (7) \\ &= 15 - 7 \\ &= 8 \end{aligned}$$

Answer 8

3

Work out the value of $4p + q$ when $p = 6$, $q = 9$.

$$\begin{aligned} &= 4(6) + (9) \\ &= 24 + 9 \\ &= 33 \end{aligned}$$

Answer 33

4

Work out the value of $2m + 3n$ when $m = 7$, $n = 4$.

$$\begin{aligned} &= 2(7) + 3(4) \\ &= 14 + 12 \\ &= 26 \end{aligned}$$

Answer 26

5

Work out the value of $a^2 + 3b$ when $a = 5$, $b = 2$.

$$\begin{aligned} &= (5)^2 + 3(2) \\ &= 25 + 6 \\ &= 31 \end{aligned}$$

Answer 31

6

Work out the value of $6c - 2d$ when $c = 4$, $d = -3$.

$$\begin{aligned} &= 6(4) - 2(-3) \\ &= 24 - (-6) \\ &= 24 + 6 \\ &= 30 \end{aligned}$$

Answer 30

7

The cost of hiring a bike is $C = 5h + 8$, where h is the number of hours. Find C when $h = 3$.

$$5 \times 3 + 8$$

Answer 23

8

$y = 3x + 2$. Find the value of x when $y = 20$.

$$3x = 18$$

Answer $x = 6$

Substitution further practice

ANSWERS

9

Work out the value of $5p - 2q$ when $p = 4$ and $q = 7$.

$$5 \times 4 - 2 \times 7 = 20 - 14$$

Answer 6

10

Work out the value of $\frac{m+n}{4}$ when $m = 9$ and $n = 11$.

$$\frac{9+11}{4} = \frac{20}{4}$$

Answer 5

11

Work out the value of $3xy$ when $x = 2$ and $y = 5$.

$$3 \times 2 \times 5$$

Answer 30

12

The perimeter P cm of a rectangle is $P = 2l + 2w$, where l is the length and w is the width. Find P when $l = 8.5$ and $w = 4$.

$$2 \times 8.5 + 2 \times 4 = 17 + 8$$

Answer 25 cm

13

On one day, the temperature $T^\circ\text{C}$ at a height of h km above the ground is given by $T = 15 - 6h$. Find the temperature at a height of 4 km.

$$15 - 6 \times 4 = 15 - 24$$

Answer -9°C

14

When $x = 3$, which is bigger, $2x^2$ or $(2x)^2$?

$$2 \times 9 = 18 \quad \text{and} \quad 6^2 = 36$$

Answer $(2x)^2$

15

The cost C pounds of a party for n people is $C = 12n + 50$. A party costs £230. How many people go to the party?

$$12n + 50 = 230$$

$$12n = 180$$

Answer 15

16

Kim says that when $a = -3$, the value of a^2 is -9 . Is Kim right? Explain.

$$(-3) \times (-3) = 9$$

a negative times a negative is positive

Answer No, it is 9