

Maths Star

Substitution

Substitution is when we replace the letters with the numbers that we are given, then work out the sum.

E.g. Work out $2x + 3y$ when $x = 3$ and $y = 4$

To do this, we replace the x with a 3 and the y with a 4, then complete the sum. **REMEMBER**, when a number is right in front of a letter, it means we **MULTIPLY**, so $2x$ is “2 times x ”.

$$\begin{aligned}\text{So, } 2x + 3y &= (2 \times 3) + (3 \times 4) \\ &= 6 + 12 = 18\end{aligned}$$

Try it yourself!

1) Find $3a + 6b$ when $a = 4$ and $b = 2$
 $= (3 \times 4) + (6 \times 2) = 12 + 12 = 24$

2) Find $2x + 3y + z$ when $x = 4$, $y = 2$ and $z = 5$
 $= (2 \times 4) + (3 \times 2) + 5 = 8 + 6 + 5 = 19$

3) Find $4x - 3z$ when $x = 3$ and $y = 2$
 $= (4 \times 3) - (3 \times 2) = 12 - 6 = 6$

4) Find $4x - 3z$ when $x = 3$ and $y = -2$
 $= (4 \times 3) - (3 \times -2) = 12 - -6 = 12 + 6 = 18$

5) What is the difference between the answers to numbers 3 and 4? And why?
The difference is that you add 6 instead of taking away 6 because minus 3 times minus 2 equals plus 6.

6) Find $3x - 3y - 3z$ when $x = 10$, $y = 5$ and $z = -3$
 $= (3 \times 10) - (3 \times 5) - (3 \times -3) = 30 - 15 - -9 = 30 - 15 + 9 = 24$

★ **Reminder: Remember your rules . . .**
minus x minus = plus, plus x plus = plus, plus x minus = minus