

Substitution 1 (substituting positive numbers)

Starter

1. (Review of last lesson)

Expand and simplify: (a) $(5x - 1)(2x - 3)$ (b) $(6 - n)(2n + 1)$

Notes

When substituting, we *replace the letters by numbers* and calculate using BIDMAS.

Set out the question correctly.

1. State what each letter is equal to at the start of the question so you have something to revise from.
2. Write down the algebraic expression.
3. Work down the page so that the '=' signs are in a column under each other.
4. With worded questions, write a sentence to communicate your answer.

N.B. $5a = 5 \times a$
 $\frac{x}{7} = x \div 7$

E.g. 1 Let $a = 4$ and $b = 9$. Find the value of:

(a) $6a$ (b) $a - b$ (c) $5a + b$ (d) $8b - 7a$

Working: (a) $6a = 6 \times 4$
 $= 24$ (b) $a - b = 4 - 9$
 $= -5$

(c) $5a + b = 5 \times 4 + 9$
 $= 20 + 9$
 $= 29$ (d) $8b - 7a = 8 \times 9 - 7 \times 4$
 $= 72 - 28$
 $= 44$

E.g. 2 Let $x = 2$, $y = 5$ and $z = 7$. Find the value of:

(a) $3x$ (b) $y + z$ (c) $x + 4y$
(d) $6x + 11z$ (e) $8y - 3z$

E.g. 3 The cost, in £, of hiring a car is given by the formula $C = 2m + 30$, where m is the miles travelled. How much will it cost if you travel 200 miles?

E.g. 4 The formula for velocity is given by $v = u + at$. Calculating the value of v when $u = 3$, $a = 10$ and $t = 2$.

Video: [Substitution](#)

[Solutions to Starter and E.g.s](#)

Exercise

p3 Ex 12.1 Qu 1ace..., 2ace..., 3ace..., 4ace..., 5ace..., 6

Summary

When substituting, we *replace the letters by numbers* and calculate using BIDMAS.

$5a = 5 \times a$
 $\frac{x}{7} = x \div 7$