

Check out

You should now be able to ...

✓ Simplify expressions by collecting like terms.	5	1, 2
✓ Expand brackets.	5	3
✓ Substitute values into expressions with brackets and formulae.	5	4
✓ Rearrange basic formulae.	5	5
✓ Form expressions.	5	6

Test it

Questions

✓ Simplify expressions by collecting like terms.	5	1, 2
✓ Expand brackets.	5	3
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Language Meaning Example

Expression	An expression is made up of terms but has no equals sign.	$2x - 6y + 3z$
Simplify	Simplify means to write an expression as simply as possible.	$3x + 5x - x = 7x$ $3a \times 4b = 12ab$
Expand	Expanding brackets means to multiply out the brackets.	$3(2x - 5y) = 6x - 15y$
Formulae	Formulae is plural of formula. A formula is a rule linking two or more variables.	The formula for finding the circumference of a circle is $C = \pi d$
Substitution	Substitution is when you replace the letter in an expression or formula with a number.	$P = 2l + 5w$ Find P when $l = 5$ cm and $w = 4$ cm. $P = 2 \times 5 + 5 \times 4 = 30$ cm

1 Simplify these expressions by collecting like terms together.

- a $b + 2b + b$
- b $5n + 9m - n + 3m$
- c $11g - 14h + 2h - 10g$
- d $6j + 3 - 2i - 8j + 5j + 2$

2 Simplify these expressions by multiplying and dividing.

- a $2a \times 12$
- b $3c \times 4d$
- c $24h \div 8$
- d $\frac{30v}{15v}$
- e $2 \times 7 \times 3x$
- f $\frac{9y}{3 \times y}$
- g $5p \times 2 \times 3q$
- h $6 \times 4s \div 3s$

3 Expand the brackets.

- a $12(a + b)$
- b $4(3v - 4)$
- c $2(3x + 1)$
- d $5(2s - 4t)$
- e $3(7 - 4s)$
- f $4(p + 2q - 3r)$
- g $6(3 + \frac{1}{2}t)$
- h $\frac{1}{2}(8m + 4n)$

4 The formula for the area of a parallelogram is

$$A = b \times h$$

where b is the length of the base and h is the perpendicular height.

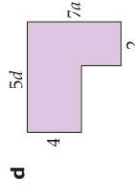
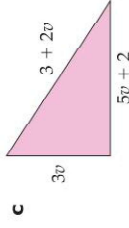
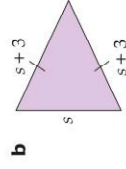
- a Find the area of a parallelogram with $b = 9$ cm and $h = 11$ cm.
- b Find the base of a parallelogram with Area = 27 cm² and height = 9 cm.

5 Tim has t apples and Phil has p apples.

- a Write an expression for the number of apples they have all together.
- b Tim eats one of his apples. How many apples does he have now?
- c Katie has twice as many apples as Phil. Write an expression for the number of apples that Katie has.

6 Find a formula for the perimeter, P , of each shape.

Simplify your answers.



What next?

Score	0 - 2	Your knowledge of this topic is still developing. To improve look at Formative test: 3A-3; MyMaths: 1158, 1179, 1187 and 1247
	3 - 5	You are gaining a secure knowledge of this topic. To improve look at Invisipen: 211, 212, 213, 214, 251, 252, 254 and 255
	6	You have mastered this topic. Well done, you are ready to progress!