

Check out

You should now be able to ...

✓ Factorise algebraic expressions.	7	1 - 2
✓ Simplify algebraic expressions.	7	3 - 4
✓ Substitute values in formulae to find unknown variables.	7	5
✓ Change the subject of a formula.	7	6 - 7
✓ Derive and graph formulae.	6	8 - 9

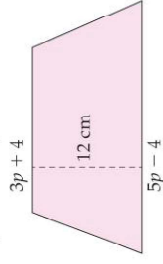
Test it

Questions

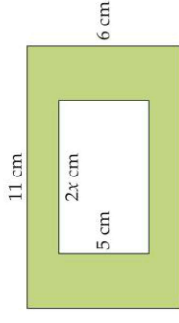
- Factorise these expressions.
 - $15x - 3$
 - $8a + 24b$
 - $24pq + 48p$
 - $21 - 28v$
- Factorise these expressions.
 - $x^2 + 8x$
 - $3x^2 + 9xy$
 - $z^3 + 3z^2 - z$
 - $16y^3 - 12y^2$
- Simplify
 - $\frac{6rs}{35}$
 - $\frac{pq^2}{5q}$
 - $\frac{12a^2b}{4a}$
 - $\frac{33x^2y}{44xy^2z}$
- Add or subtract these fractions.
 - $\frac{x + 2x}{6} + \frac{3a}{14} - \frac{a}{7}$
 - $\frac{2y}{3} + \frac{y}{8}$
 - $\frac{5b}{6} - \frac{3b}{8}$
- A formula for distance travelled is given by $s = ut + \frac{1}{2}at^2$. Use this formula to find the value of s when $u = 30$, $a = -4$, $t = 3$
- Make x the subject of each formula.
 - $x - 3b = 2a$
 - $8 + 2x = y - 7$
 - $3x^2 + 4y = 5z$

- Make v the subject of $E = \frac{mv^2}{2}$
- Find v when $m = 7$, $E = 200$
- Find m when $E = 100$ and $v = -3$

- Derive a formula for the area, A , of this trapezium.



- If the area of the trapezium is 288cm^2 , what is the value of p ?
- Find a formula for the shaded area, A , of this shape.



- Copy and complete the table of values.
- | $x(\text{cm})$ | 1 | 2 | 3 | 4 | 5 | 6 |
|------------------|---|---|---|---|---|---|
| $A(\text{cm}^2)$ | | | | | | |
- Draw a graph of A against x .

Language Meaning Example

Algebraic fractions	Fractions containing algebraic expressions.	$\frac{5x + 2y}{xy}$, $\frac{2z}{5}$ and $\frac{3}{a + b}$ are all algebraic fractions
Change the subject	Rearrange a formula so that a different variable is 'on its own'.	$v = \frac{b^2}{k}$ rearranged to make b the subject gives $b = \sqrt{vk}$
Derive	Construct a formula from information given.	The cost C pence of n chocolate bars each costing $35p$ is $C = 35n$
Expand	Multiply a bracket out.	$3(2x + 4y) = 6x + 12y$
Factorise	The reverse of expanding a bracket by taking out common factors.	$6x + 12y = 6(x + 2y)$
Formula (plural formulae)	A rule linking two or more variables.	The formula for finding the circumference of a circle is $A = \pi d$
Substitute	Replace variables with numerical values.	Substitute $a = 4$ in $a^2 - 2a$ gives $16 - 8 = 8$

What next?

Score	0 - 4	5 - 7	8, 9
	Your knowledge of this topic is still developing. To improve look at Formative test: 3B-3; MyMaths: 1155, 1171, 1178 and 1186	You are gaining a secure knowledge of this topic. To improve look at InvisiPen: 215, 223, 241, 252, 254, 255, 256 and 273	You have mastered this topic. Well done, you are ready to progress!