Algebra Vocabulary

Terms	A term is separated by a + or - sign E.g: 5x-3y+2 There are 3 terms in this equation: 5x, -3y and 2
Coefficient	The number in front. E.g: In the term 5y, y's coefficient is 5
Constant	Constant is the single number which does not have any letters or numbers attached to it.
Like terms	Terms including *exactly* the same letter or combination of letters. E.g: 6p, 8p and 5p are like terms ab, 10ab and -2ab are like terms
Unlike terms	Terms which have different letters or combination of letters. E.g: 3x and 3y are unlike terms

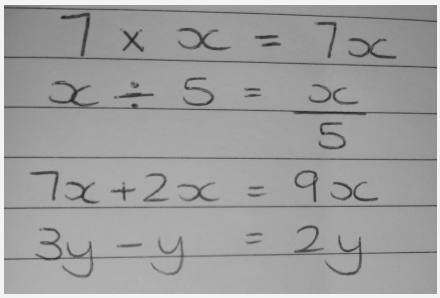
Simplifying Expressions

Rule	Example
Any numbers in the expression are multiplied.	5 X 6x = 30x
Numbers are placed in front of letters when multiplying.	x X 3y = 3xy
If there is more than one letter they are written in alphabetical order. Numbers can be multiplied separately, then multiply letters.	2q X 7p = 14pq 6p X 3p = 6 X 3 X p X p $=18p^2$

Simplifying Expressions (cont)

Like terms can be grouped together and then added or subtracted. **Remember**, the + and - signs go with the terms on their *right*.	Simplify: 2x + y - x + 8y =(2x - x) + (y + 8y) = x + 9y

Examples - Simplifying



Power Rules

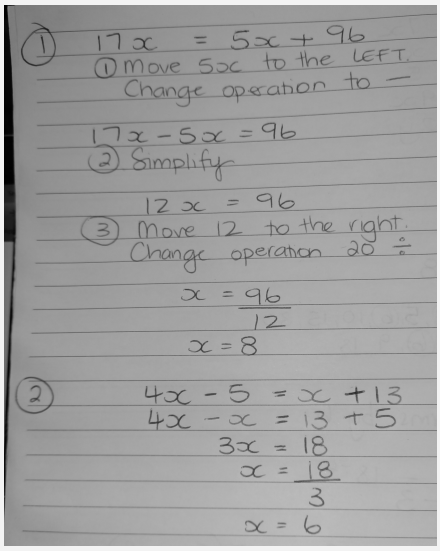
p^4 means p multiplied by itself *four* times	p^4 = p X p X p X p
Simplify as powers and then multiply by each other	x X x X y X y $= x^2y^2$
When multiplying expressions with the **same base** (letter), we **add the powers**.	x^2 X x^5 $= x^{2+5}$ $=x^7$
When dividing expressions with the **same base**, we can **subtract the powers**.	$20x^4 \div 10x$ $= 20x^{4-1} \div 10$ $=2x^3$
When it is a "power of a power", **multiply** the powers	$(p^4)^2$ $= p^{4x2}$ $= p^8$
Power of 0 is always **equal to 1**	$p^0=1$, $4^0=1$, $2768^0=1$

Solving Equations

The goal of solving an equation is to get the **letter term** on the **left** of the = sign and the **number/value** on the **right**.

Remember if a number or term is moved across the equals, then you must use the opposite operation.

Solving Examples



Expanding

Multiply each term in the brackets by the outside term.

Then add together and simplify.

Examples:

8(c + d - e)	4x(2x - 5)
= 8 X c + 8 X d - 8 X e	=(4x X 2x) + (4x X -5)
=8c + 8d - 8e	$=8x^2 - 20x$

Expanding - FOIL

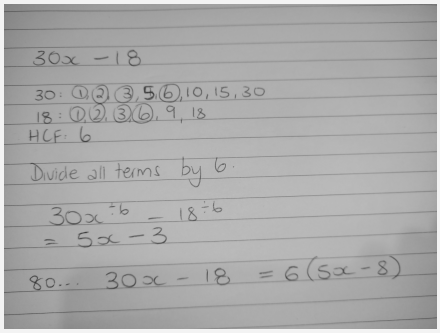
Factorising

1) Find the Highest Common Factor (number that divides in all terms equally) of all terms. Write this outside the brackets.

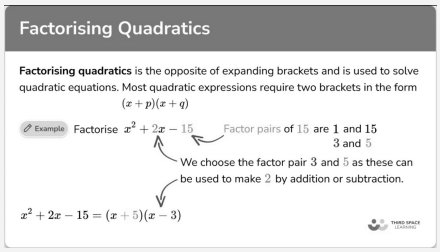
2) Divide each term by the HCF, putting result in the brackets.

Note: The HCF could be a number or a letter.

Factorising Example



Factorising Quadratic Equations



Calculating Gradients of a Line