

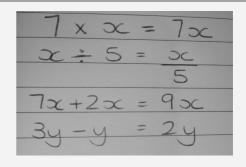
# Year 10 Algebra Cheat Sheet by ceyre via cheatography.com/128194/cs/47197/

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	
Coeffi- cient	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 <i>exactly</i> 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	2q X 7p = 14pq
letters.	6p X 3p = 6 X 3 X p X p =18p <sup>2</sup>

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

# Examples - Simplifying



Power Rules	
p <sup>4</sup> means p multiplied by itself <i>four</i> times	p <sup>4</sup> = 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.	$x^{2} \times x^{5}$ $= x^{2+5}$ $= x^{7}$
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", <b>multiply</b> the powers	(p4)2 = p <sup>4x2</sup> = p <sup>8</sup>
Power of 0 is always equal to 1	p <sup>0</sup> =1, 4 <sup>0</sup> =1, 2768 <sup>0</sup> =1



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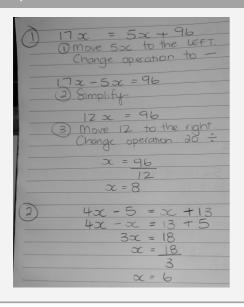
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### Solving Equations

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)

 $= 8 \times c + 8 \times d - 8 \times e$   $= (4x \times 2x) + (4x \times -5)$ 

=8c + 8d - 8e  $=8x^2 - 20x$ 

### **Expanding - FOIL**

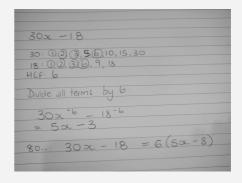


#### Factorising

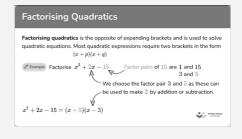
- 1) Find the Highest Common Factor (number that divides in all terms equally) of all terms. Write this outside the brackets.
- 2) Divide each term by the HCF, putting result in the brackets.

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

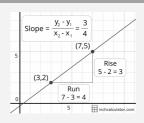
### Factorising Example



## Factorising Quadratic Equations



## Calculating Gradients of a Line





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