Algebra - Class 1

Term - can be made up of the following:

- a number
- a letter
- a combination of the above

$2x$

In algebra, a letter represents an unknown number.

Expression - a group of terms separated by addition (+) or subtraction (-) signs

$2x + 3y$

Equation - when an expression/term is equal to another expression/term. These can always be solved.

$2x + 1 = 9$

$3x \rightarrow$ means 3 multiplied by x or 3 lots of x

$x \rightarrow$ can be seen as 1x or 1 lot of x

$x^2 \rightarrow$ means x multiplied by x

$\frac{x}{3} \rightarrow$ means x divided by 3

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When a **term** has the same letter/ combination of letters we can **collect** them. Letters that are different cannot be collected. This is known as **collecting like terms** or **simplifying**.

Examples :

$3x + 2x \longrightarrow 5x$

$x + 9x \longrightarrow 10x$

$x + 3y \rightarrow$ can't be collected

$5x - 3x + 11x \rightarrow 13x$

$4x + 2y + 3x \rightarrow 7x + 2y$

Questions

$3x + 4y - x + 2y$

$4xy + 3x - 2y + 6xy - y$

$3x^2 - 2x^2y + 4xy^2 - x^2y^2$

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To **expand a single bracket** in algebra you need to multiply the term outside the bracket by every term inside.

Examples :

$3(x+2) \rightarrow 3x+6$

$5(2x-1) \rightarrow 10x-5$

$x(x+1) \rightarrow x^2+x$

$4x(2x+1) \rightarrow 8x^2+4x$

$7(x+3y) \rightarrow 7x+21y$

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Questions

$2(a+d)$

$5x(3x-2y)$

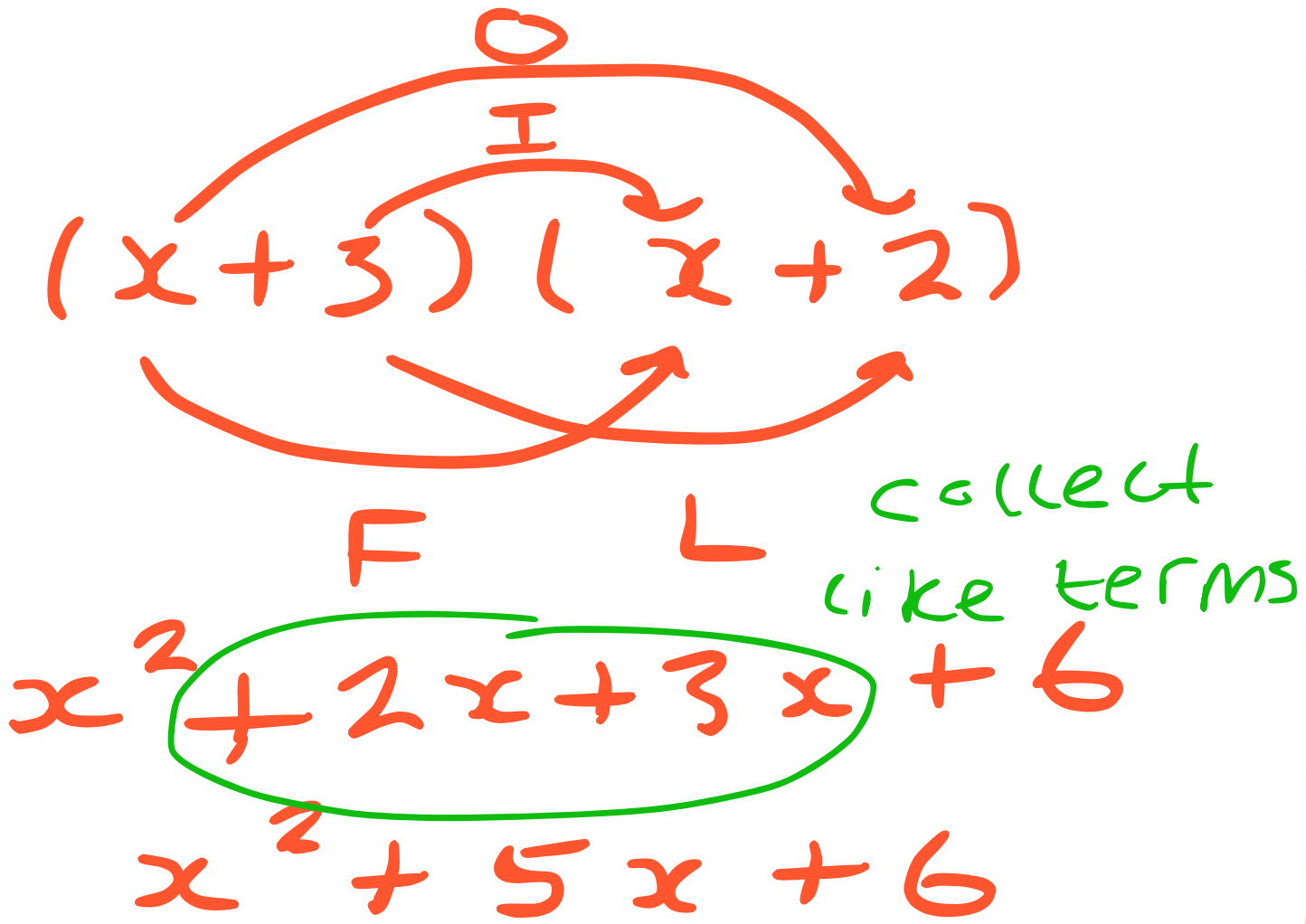
$4(x+3)+7(4-2x)$

Algebra - Class 1

To **expand a double bracket** in algebra you need to multiply every possible combination of terms. You can do this through a method called FOIL:

First - multiply the first term in each bracket
Outside - multiply the outside terms (shown below)
Inside - multiply the inside terms (shown below)
Last - multiply the last term in each bracket

Example :



Questions

$(x+4)(x+6)$

$(3x+2)(2x-7)$

Algebra - Class 1

We need to follow certain rules when it comes to **multiplying** and **dividing** terms in algebra. These are known as the **rules of indices**:

- Multiplying like terms - add the powers

$$x^3 \times x^2 = x^{3+2} = x^5$$

- Dividing like terms - subtract the powers

$$x^6 \div x^4 = x^{6-4} = x^2$$

- Power raised to another power - multiply the numbers

$$(x^4)^2 = x^{4\times 2} = x^8$$

Questions

$2m \times 3$

$n^3 \times n^5$

$(x^3)^5$

$$\frac{c^3 d^4}{c^2 d}$$