Coordinate geometry

Standard form	y = mx+b (Is a line with slope m and y-intercept (o,b) The coefficient of x is the slope and the constant is the y-intercept
Point-slope	$y-y_1=m(x-x_1)$
Slope formula	$\frac{y_2-y_1}{x_2-x_1}$
Midpoint of a segment connecting 2 points	$(\frac{x_1+x_2}{2},\frac{y_1+y_2}{2})$
Distance between 2 points	$\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$
Point - Line Distance:	$\frac{\lvert ax_1+by_1+c\rvert}{\sqrt{a^2+b^2}}$

-No solutions → If the graphs of the equations are parallel then they never intersect, therefore no solutions to the system

-One solution → If the equations are not the same line then they meet at one point.

-Infinitely many solutions → If the 2 equations produce the same line then every point is a solution meaning infinitely many solutions

Line of solution : infinitely many solutions

Positive slope - Line goes upward from left to right ↗

Negative slope - Line goes downward from left to right ↘

Slope is 0 - The line is horizontal ↔

Slope is undefined - The line is vertical ↕

Slopes are the same	**parallel**
Negative reciprocals	**perpendicular**