Straight-line graphs video playlist

Straight line graphs

y- intercept

The y-intercept of the line is the point along the y- axis where the line intercepts.

$$y = mx + c$$

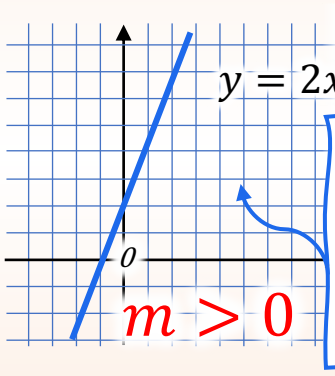
c: y- intercept

m: Gradient

Gradient

$$gradient = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\text{rise}}{\text{run}}$$

The gradient, or slope, of a line is a number given to show how steep the line is. The gradient is the amount of vertical movement for each unit of horizontal movement to the right.

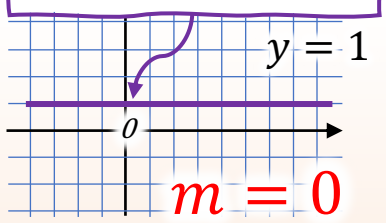


Positive Gradient

A slope that is facing uphill always has a positive number gradient.

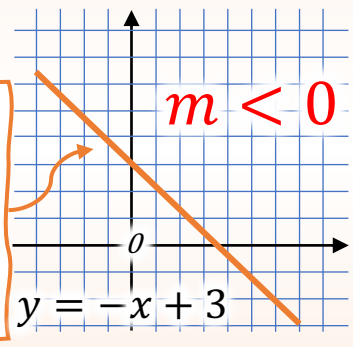
Flat Gradient

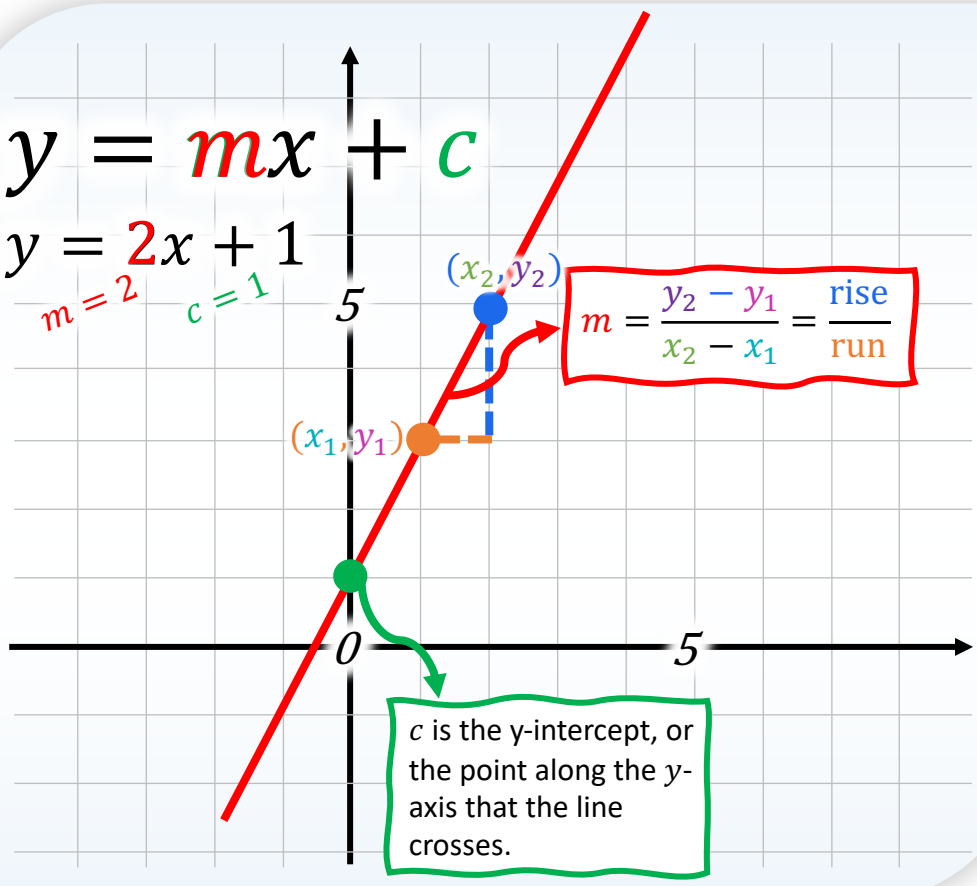
A slope that is parallel to the x- axis.



Negative Gradient

A slope that is facing downhill always has a negative number gradient.





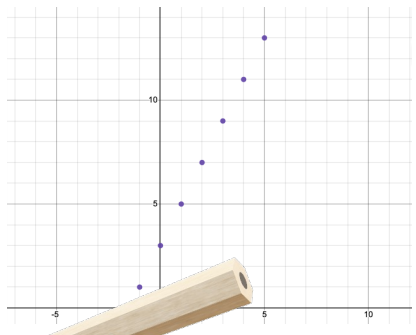
Example

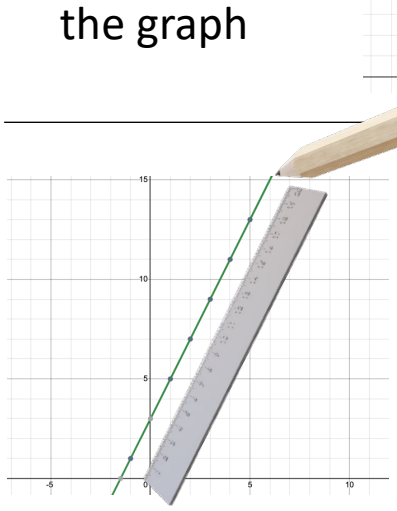
Draw a line with the equation $y = 2x + 3$

Step- 1: Fill in a table of values

y	1	3	5	7	9	11	13
x	-1	0	1	2	3	4	5

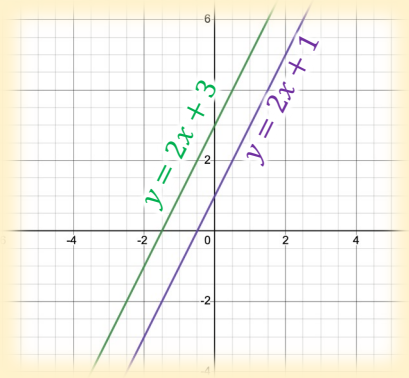
Step- 2: Plot the points on the graph





Step- 3: Connect the dots, with a pencil and ruler!

Parallel lines

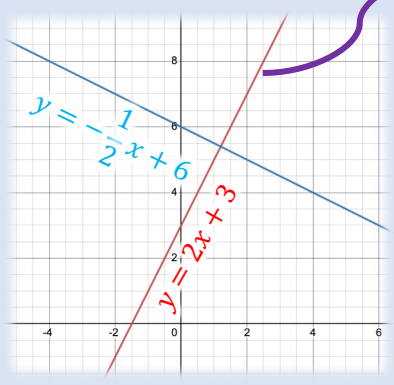


Parallel lines are two or more lines that have the same gradient, but different y-intercepts. They also have an equal distance between them.

Example: These lines are all parallel (same gradient!)

$y = 3x + 3$ $\quad y = 3x + 5$
$y = 3x + 4$ $\quad y = 3x - 2$

Perpendicular lines



$$m' = -\frac{1}{m}$$

The perpendicular to a line intersects it at a 90° angle. The equation of a perpendicular line has a specific gradient but can have any y-intercept.

Example: $y = 2x + 3$
Perpendicular: $y = -\frac{1}{2}x + 3$

Example: $y = -\frac{3}{2}x + 3$
Perpendicular: $y = \frac{2}{3}x + 3$

Click the link below to find more revision recourses https://addvancemaths.com/revision/