

Linear Graphs - Gradient and y Intercept - PDF Copy

The presentation contains the slides below with the objective of enabling students to: **Understand the connection between gradient and y intercept of a linear graph and its equations in the form: $y = mx + c$.** The presentation contains explanation and problems that can be done and then checked with provided answers.

Gradient and y Intercept of Linear Graphs

Objectives:
Understand how to the connection between gradient and y intercept of a linear graph and its equations in the form - $y = mx + c$

Grade 6-8 Topic

Gradient

Gradient is a number that describes steepness. It is obtained from the up distance divided by the along distance like this...

Gradient = Up ÷ Along

Gradient = 6 ÷ 2

Gradient = 3

It does not matter where the along distance is placed, we will always get the same answer.

Here is an example where the along distance is 3...

Gradient = Up ÷ Along

Gradient = 9 ÷ 3

Gradient = 3

Gradient = Up ÷ Along

So, we can find the gradient of each of the lines - A, B & C - like this...

Gradient = Up ÷ Along

Line A
Gradient = 6 ÷ 3
Gradient = 2

☆ 1

☆ 2

☆ 3

☆ 4

☆ 5

Gradient = Up ÷ Along

Line A
Gradient = 6 ÷ 3
Gradient = 2

Line B
Gradient = 4 ÷ 4
Gradient = 1

Gradient = Up ÷ Along

Line A
Gradient = 6 ÷ 3
Gradient = 2

Line B
Gradient = 6 ÷ 3
Gradient = 2

Line C
Gradient = 1 ÷ 4
Gradient = 0.25

Here are the equations of each of the lines...

Line A
 $y = 2x + 5$

Line B
 $y = x + 2$

Line C
 $y = 0.25x - 1$

What do you notice?

The number that multiplies x is the gradient

Line A
 $y = 2x + 5$

Line B
 $y = x + 2$

Line C
 $y = 0.25x - 1$

This is 2x but we do not write the x

Gradient 1.25

The number that multiplies x is the gradient

Line A
 $y = 2x + 5$

Line B
 $y = x + 2$

Line C
 $y = 0.25x - 1$

The number we add or subtract is the y intercept

☆ 6

☆ 7

☆ 8

☆ 9

☆ 10

All linear equations have this general form

$y = mx + c$

The number that multiplies x is the gradient

The number we add or subtract is the y intercept

Here is the graph of...

$y = 10 - 2x$

The y intercept is 10

The gradient is the number that multiplies the x and this is -2. All lines that slope down like this one have negative gradients...

When we draw an along distance, we obtain a down distance

$y = 10 - 2x$

We call this a negative up distance

-10 Up

Gradient = Up ÷ Along

Gradient = -10 ÷ 5

Gradient = -2

What are the equations of these graphs?

$y = 2x + 4$

$y = x + 2$

$y = 0.5x + 1$

$y = 3x - 4$

$y = 9 - x$

$y = 12 - 2x$

$y = 6 - 0.5x$

☆ 11

☆ 12

☆ 13

☆ 14