Graphing Straight Lines

Sunday, 28 January 2018 12:10 pm

Key questions:
What is a linear relationship?
What is the gradient of a line?
What is the intercept?
What are special lines?

$y = mx + c$

$y = 2x + 3 \Leftarrow (x, y)$ — Relationship — Coords!

Linear relationship is where one variables value is dependent on another.
Describes all the points which will fall on a line.
How can we test if a point lies on a line?

$y = 2x + 3$ ⇒ $(3, 10)$ sits on the line

$y = 2(3) + 3$
$= 6 + 3$
$= 9$ ← $(3, 9)$ on the line

$(3, 10)$

$x = 1$ $y = 2(1) + 3$
$y = 2 + 3$
$y = 5$ $(1, 5)$

$x = 2$ $y = 2(2) + 3$
$= 4 + 3$
$= 7$ $(2, 7)$

$x, 3, 4, 5, 6, 100, 1000$

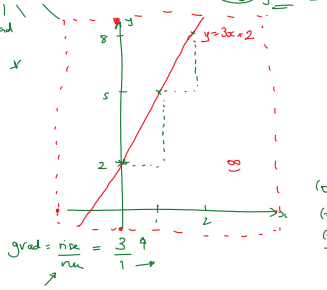
1F Graphing straight lines	Exercise 1F Page 32		
Let's start: *Five graphs, five equations*		3, 4(½)	—
Key ideas		5-8(½)	5-8(½)
Example 15, 16, 17, 18		9-12	10-13
		14, 15	15, 16
		—	17

PLEASE NOTE:
If you have a textbook saying Year 10 Australian Curriculum it's not the correct book :(We have moved (as a school) to the Victorian Curriculum. You may be best to get the Victorian Book (either online or hard copy)

Gradient/Intercept form

$y = mx + c$ — m: grad, c: y-axis intercept

$y = 3x + 2$ ✓
$y = -2x - 2$
$y = 6x$
$y = 7x - 3$
$y = 10x + 4$

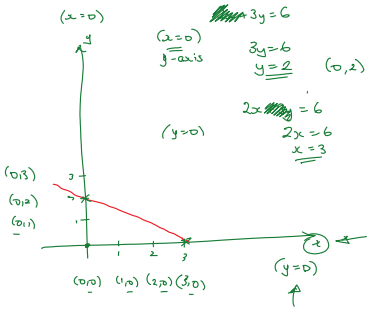


Intercept form

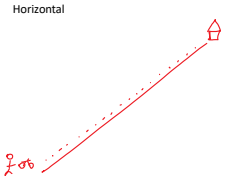
$2x + 3y = 6$ ← sim. eqⁿ's

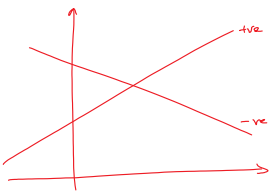
$(x = 0)$ $3y = 6$
y-axis $3y = 6$
$y = 2$ $(0, 2)$

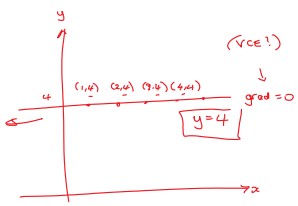
$(y = 0)$ $2x = 6$
$2x = 6$
$x = 3$ $(3, 0)$

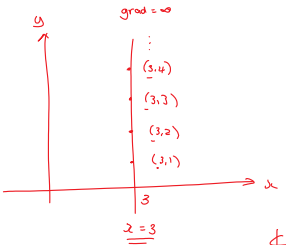


Gradient of a line:
Measure of slope-iness
Positive
Negative
Vertical
Horizontal







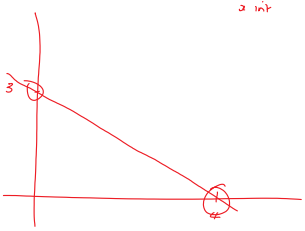


Finding intercepts

3SG! $x = ?$

Finding equations from intercepts

$\frac{x}{a} + \frac{y}{b} = 1$ — a: x-int, b: y-int



$\frac{x}{4} + \frac{y}{3} = 1$ ÷4 ×4 — common denom

$x + \frac{4y}{3} = 4$ ×3

$3x + 4y = 12$

Application question

9 Sam is earning some money picking apples. She gets paid $10 plus $2 per kilogram of apples that she picks. If Sam earns $C for n kg of apples picked, complete the following.

a Write a rule for C in terms of n. $C = 10 + 2n$

b Sketch a graph for $0 \leq n \leq 10$, labelling the endpoints.

c Use your rule to find:

i the amount Sam earned after picking 9 kg of apples

ii the number of kilograms of apples Sam picked if she earned $57.

Apply!

c Use your rule to find:

i the amount Sam earned after picking 9 kg of apples

ii the number of kilograms of apples Sam picked if she earned $57.

$c = 10 + 2n$

$C = 2n + 10$

$y = mx + c$

