

Linear Graphs - Draw the graph using $ax + by = c$ equation - PDF Copy

The presentation contains the slides below with the objective of enabling students to: **Draw the graphs of equations that have the general form: $ax + by = a$.** The presentation contains explanation and problems that can be done and then checked with provided answers.

Draw Graphs from Linear Equations

Objectives:
Draw graphs from linear equations in the form:

$$ax + by = c$$

Grade D-C Topic

☆ 1

Sometimes, linear equations are given in the form

$$ax + by = c$$

The a, b and c letters can be any numbers

☆ 2

Here is an example...

$$3x + 2y = 12$$

We can draw the graph of equations written in this way like this...

☆ 3

$3x + 2y = 12$

When $x = 1$ then...

$$2y = 12 - 3x$$

$$\rightarrow y = 6 - 1.5x$$

When $y = 1$ then...

$$3x = 12 - 2y$$

$$\rightarrow x = 4 - \frac{2}{3}y$$

Use these two points to draw the graph

☆ 4

Here is another example showing how to draw the graph of...

$$4x - 5y = 20$$

When $x = 1$ then...

$$-5y = 20 - 4x$$

$$\rightarrow y = -4 + \frac{4}{5}x$$

When $y = 1$ then...

$$4x = 20 + 5y$$

$$\rightarrow x = 5 + \frac{5}{4}y$$

Use these two points to draw the graph

☆ 5

The next exercise can be completed using graph paper or a worksheet with axes and grid as shown on the right can be obtained from www.brain-cells.co.uk

☆ 6

Draw the graphs of these equations:

- $2x + y = 10$
- $x + 2y = 8$
- $3x + 2y = 12$
- $5x + 2y = 20$
- $2x - 3y = 18$
- $4x - 5y = 20$
- $-4x + 8y = 24$
- $-3x + 2y = 18$

☆ 7

1. $2x + y = 10$

When $x = 0$

$$y = 10$$

When $y = 0$

$$2x = 10$$

$$\rightarrow x = 5$$

☆ 8

2. $x + 2y = 8$

When $x = 0$

$$2y = 8$$

$$\rightarrow y = 4$$

When $y = 0$

$$x = 8$$

☆ 9

3. $3x + 2y = 12$

When $x = 0$

$$2y = 12$$

$$\rightarrow y = 6$$

When $y = 0$

$$3x = 12$$

$$\rightarrow x = 4$$

☆ 10

4. $5x + 2y = 20$

When $x = 0$

$$2y = 20$$

$$\rightarrow y = 10$$

When $y = 0$

$$5x = 20$$

$$\rightarrow x = 4$$

☆ 11

5. $2x - 3y = 18$

When $x = 0$

$$-3y = 18$$

$$\rightarrow y = -6$$

When $y = 0$

$$2x = 18$$

$$\rightarrow x = 9$$

☆ 12

6. $4x - 5y = 20$

When $x = 0$

$$-5y = 20$$

$$\rightarrow y = -4$$

When $y = 0$

$$4x = 20$$

$$\rightarrow x = 5$$

☆ 13

7. $-4x + 8y = 16$

When $x = 0$

$$8y = 16$$

$$\rightarrow y = 2$$

When $y = 0$

$$-4x = 16$$

$$\rightarrow x = -4$$

☆ 14

8. $-4x + 8y = 16$

When $x = 0$

$$8y = 16$$

$$\rightarrow y = 2$$

When $y = 0$

$$-4x = 16$$

$$\rightarrow x = -4$$

☆ 15