Graphing (Linear Relations)

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6.1 Representing Patterns

Patterns can be described:
- in words
- a table
- an equation

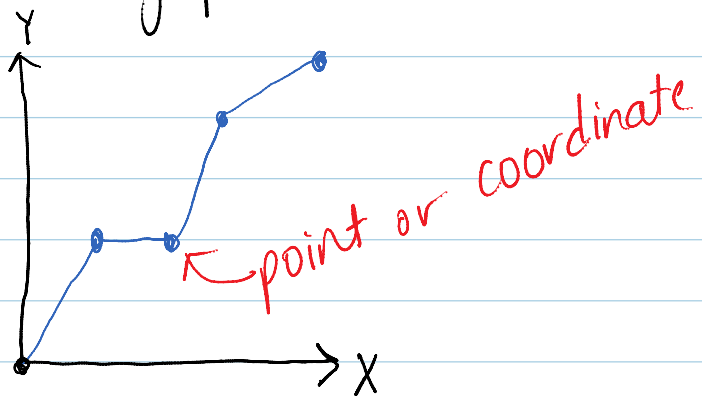
ex. Table of Values

Figure Number, n	Perimeter, P
1	7
2	10
3	13
4	16

+1, +1, +1 (Figure Number) ; +3, +3, +3 (Perimeter)

6.2 Interpreting Graphs

Analyze the graph of a linear relation



X-axis is horizontal = independent variable
y-axis is vertical = dependent variable

The point (coordinates) will be given as (x, y)

the 1st # is always the x-value

2nd # is always the y-value

Interpolate: estimate a value between 2 given points

extrapolate: estimate a value beyond a given set of values

6.3 Graphing Linear Relations

You can graph a linear relation represented by an equation:
- use the equation to make a table of values
- graph
  - ↳ if its a straight line ⇒ Linear Relation

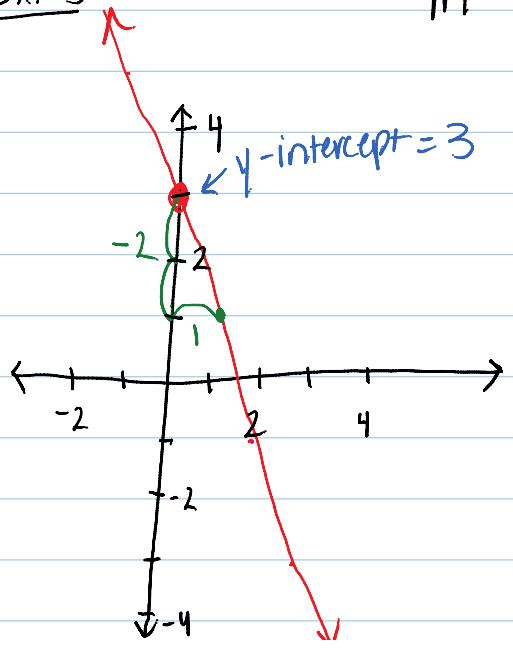
Equations are in the form:

$$y = mx + b$$

b = y-intercept

m = slope $= \frac{\text{rise}}{\text{run}} = \frac{y}{x}$

Ex. #3



Write an equation for the graph.

$y = mx + b$

$y = mx + 3$

slope ??? $= \frac{\text{rise}}{\text{run}} = \frac{-2}{1} = -2$

-4

slope = rise / run = -2 / 1 = -2

$$y = -2x + 3$$

Ex. #4 Write an equation from a table of values

X	Y
0	-8
1	-5
2	-2
3	1
4	4
5	7

+1, +1, +1, +1, +1 (X)

+3, +3, +3, +3, +3 (Y)

y-intercept = -8

$y = mx + b$

slope = rise / run = 3 / 1 = 3

$$y = 3x - 8$$