Curriculum Outcomes:

(PR1) Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

(PR2) Graph linear relations, analyze the graph and interpolate or extrapolate to solve problems.

Student Friendly: Quiz Review

Here is a pattern made with toothpicks. The pattern continues.

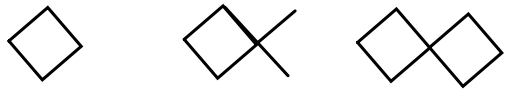


Figure 1 Figure 2 Figure 3

a) Create a table of values for the above pattern.

F	T
1	4
2	6
3	8
4	10
5	12

b) Write an equation that relates the number of toothpicks,t, to the figure number, f.

$$T = 2f + 2$$

c) Use your equation to determine how many toothpicks would be in figure number 280?

$$T = 2f + 2$$
$$T = 2(280) + 2$$
$$T = 560 + 2$$
$$T = 562$$

d) Use your equation to determine which figure number has 134 toothpicks?

$$T = 2f + 2$$
$$134 - 2 = 2f + 2 - 2$$
$$\frac{132}{2} = \frac{2f}{2}$$
$$66 = f$$

Warm Up

Create a table of values to graph the following equations.

hint: must use your equation to determine the change in your x values

$$\frac{2}{5}x - y = -4$$

$\times 5$ $\times 5$ $\times 5$

$$2x - 5y = -20$$

$-2x$ $-2x$

$$-5y = -2x - 20$$

-5 -5 -5

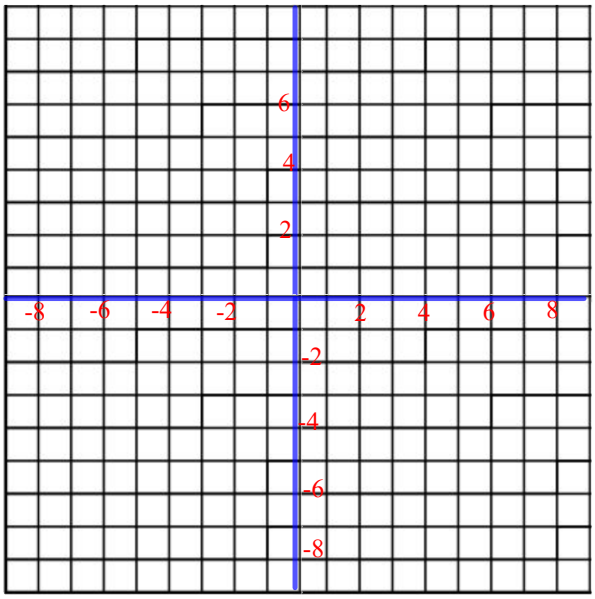
$$y = \frac{2x}{5} + 4$$

$\Delta x = 5$

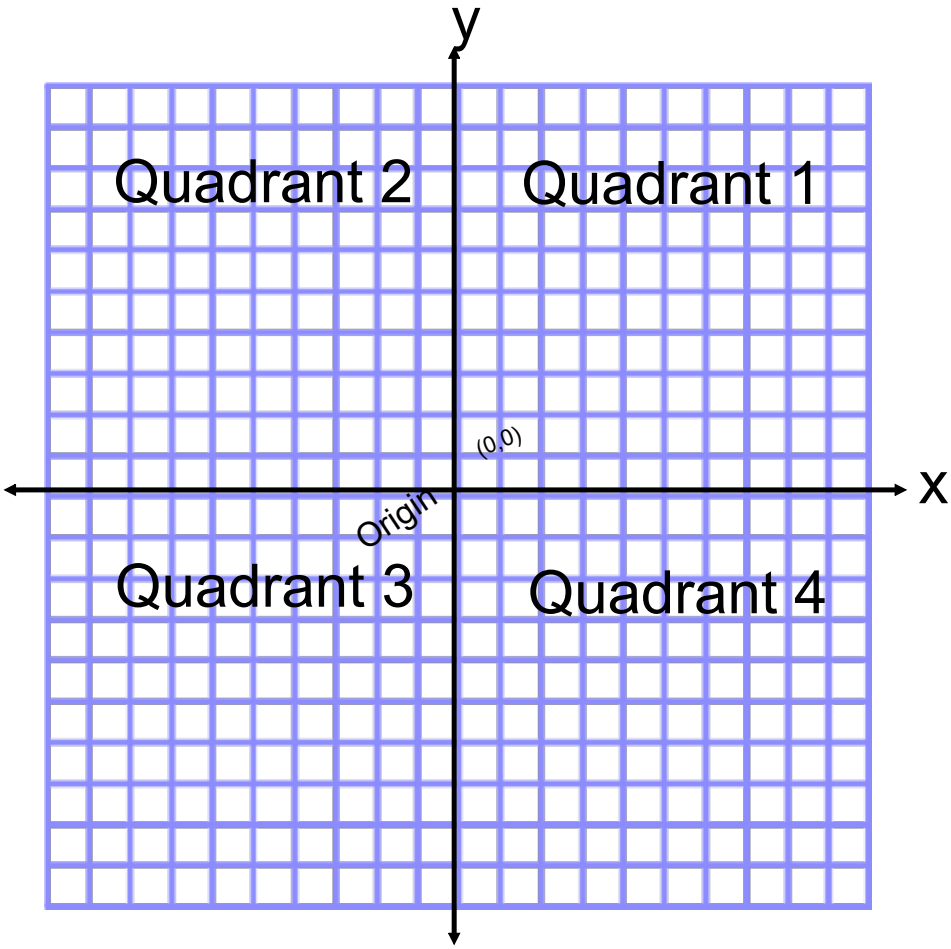
x	y
-5	2
0	4
5	6

$\Delta x = 5$

x= -5	x= 0
$y = \frac{2x}{5} + 4$	$y = \frac{2x}{5} + 4$
$y = \frac{2(-5)}{5} + 4$	$y = \frac{2(0)}{5} + 4$
$y = -2 + 4$	$y = 0 + 4$
$y = 2$	$y = 4$



Coordinate Geometry Review



Equation

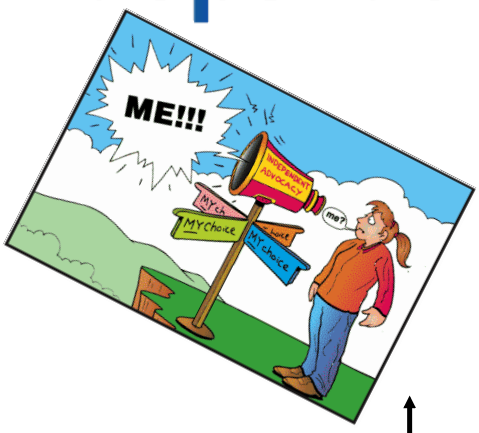
$$y = \left(\frac{\text{Change } y}{\text{Change } x}\right)(\text{"x"}) \pm \#$$

X → independent

y→ dependent

Dependent VS. Independent

If the equation is: $P = 2n + 4$



__P__ is the dependent variable

__n__ is the independent variable

Dependent variable is always plotted on vertical axis (y-axis) ↕

Independent variable is always plotted on the horizontal axis (x-axis) ↔

Linear Relation

- is when the graph is a straight line
- a constant change in 'x' causes a constant change in 'y'

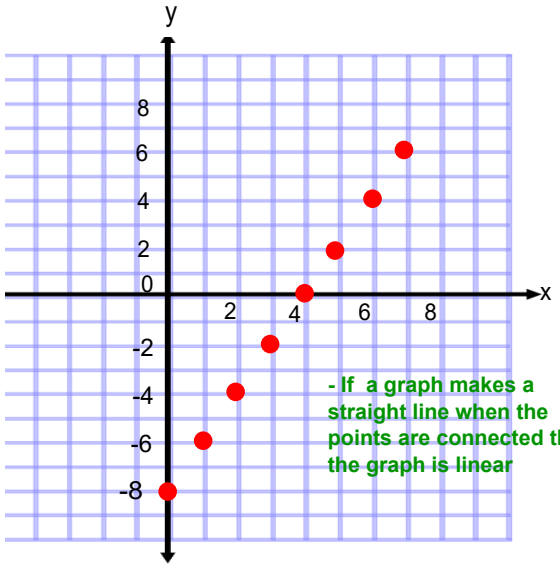
Table of Values

x	y
0	-8
1	-6
2	-4
3	-2

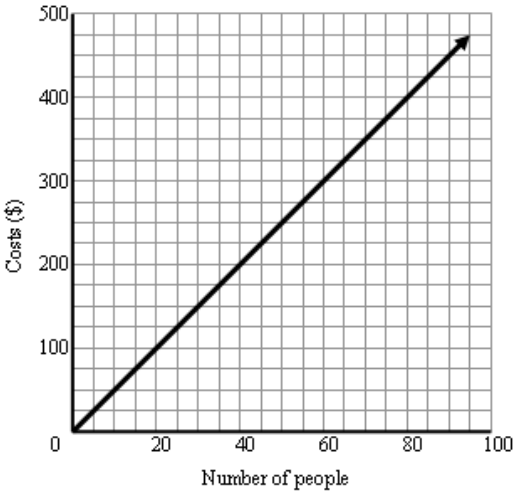
+1 +1 +1

+2 +2 +2

- In a table if the x values change by a constant , and the y values change by a constant then the graph is linear



- If a graph makes a straight line when the points are connected then the graph is linear



Concrete vs. Discrete

Discrete : Dots

Continuous : Connect

-Look at the "x" and see if you can have half values

Cost of video games

Number of Video games	Cost, C($)
1	25
2	50
3	75

Can you buy 1.5 video games?

So would you connect the dots???

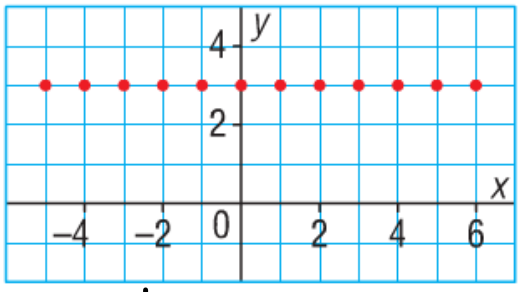
Babysitting Job

Number of Hours	Earnings, C($)
1	10
2	20
3	30

Can you work 1.5 hours?

So would you connect the dots???

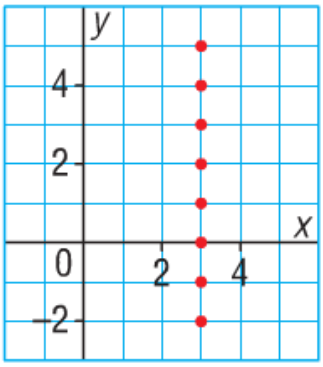
Horizontal vs. Vertical



x	y

For every 'x' value y will always equal 3

Equation : y = 3



x	y

For every 'y' value x will always equal 3

Equation: x = 3

Oblique Lines

An oblique line can be diagonal, sloping or slanted. It is not vertical, horizontal, parallel or perpendicular

ique Linear Eqautions

$y = \frac{\Delta y}{\Delta x} x \pm \#$

$ax + by = c$

$y = 2x + 5$

$3x - 4y = 8$

These are some other ways to write the equation of a linear relation.

$y = \frac{\Delta y}{\Delta x} x \pm \#$	Oblique
$ax + by = c$	Oblique
$x = \#$	Vertical
$y = \#$	Horizontal

You Try

Make a table of values, and then graph. Show all work

$$-5x + 4y = 8$$

+5x +5x

$$\frac{4y}{4} = \frac{5x}{4} + \frac{8}{4}$$

$$y = \frac{5x}{4} + 2$$

Δ x = 4

x	y
-4	-3
0	2
4	7

remember

$$y = \frac{\Delta y}{\Delta x}\, x \pm \#$$

X= -4

$y = \frac{5(-4)}{4} + 2$

y= -5 + 2

y= -3

X= 0

$y = \frac{5(0)}{4} + 2$

y= 0 + 2

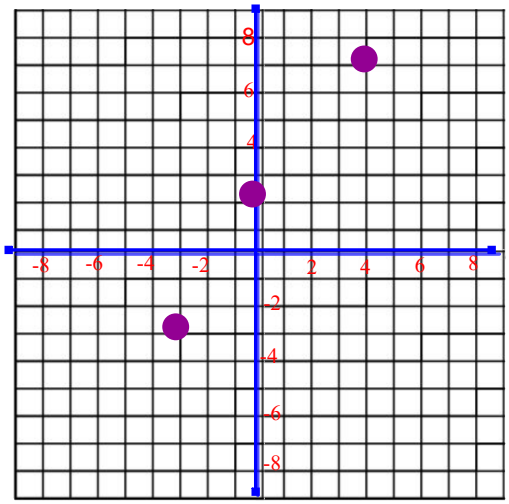
y= 2

X= 4

$y = \frac{5(4)}{4} + 2$

y= 5 + 2

y= 7



$$\frac{1}{3}x^{\times 6} + \frac{1}{2}y^{\times 6} = -3^{\times 6}$$

$$2x^{-2x} + 3y = -18^{-2x}$$

$$\frac{3y}{3} = \frac{-2x}{3} \quad \frac{-18}{3}$$

$$y = \frac{-2}{3}x - 6$$

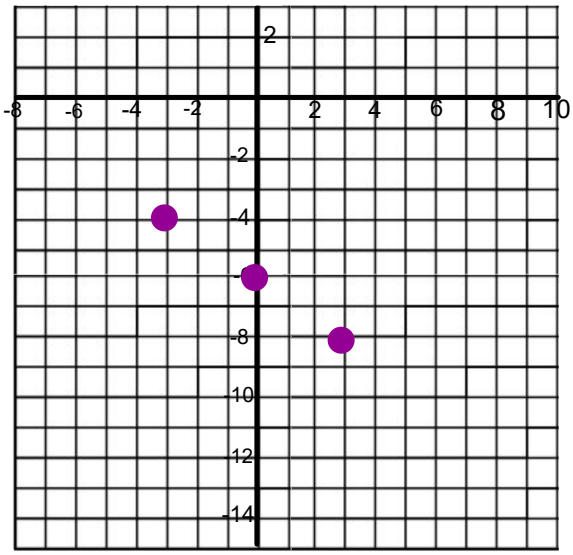
$$y = \frac{-2}{3}x - 6$$

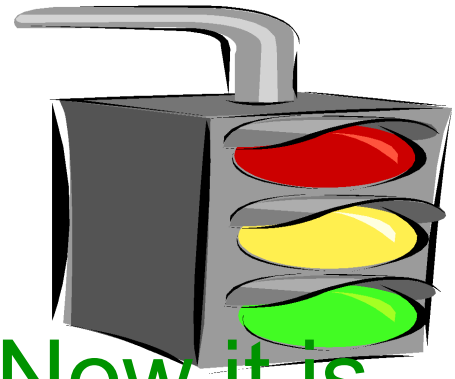
$\Delta x = 3$

x	y
-3	-4
0	-6
3	-8

$\Delta x = 3$

x= -3	x= 0
$y = \frac{-2}{3}x - 6$	$y = \frac{-2}{3}x - 6$
$y = \frac{-2(-3)}{3} - 6$	$y = \frac{-2(0)}{3} - 6$
$y = 2 - 6$	$y = 0 - 6$
$y = -4$	$y = -6$





Now it is time for Home Learning

Class/Homework

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QUESTIONS

1,2,3(bdf)Use own x values,4,5ad,6,7

Attachments

Assignment 4.3.pdf