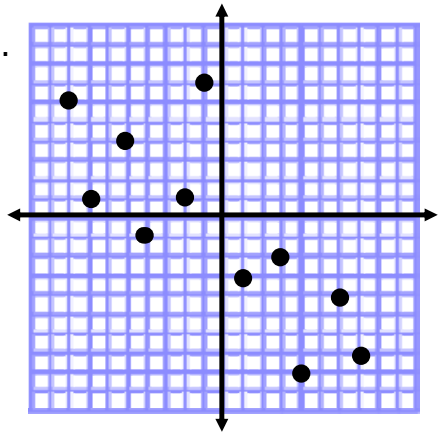
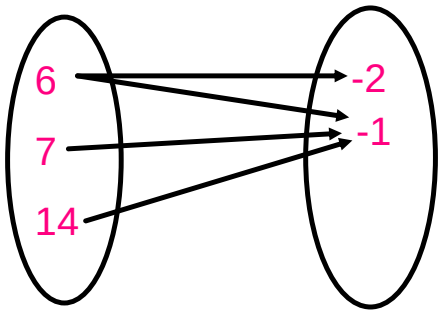
Warm-Up 8/28

For 1-3, determine if the following are functions. **Explain your reasoning.**

1. 

2. 

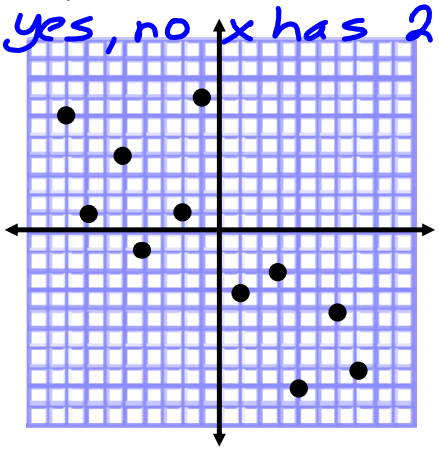
3. (-2, 4), (4, 15) , (-2, 5) , (5, 23)

4. Evaluate f(3) when $f(x) = x^2 - 3$

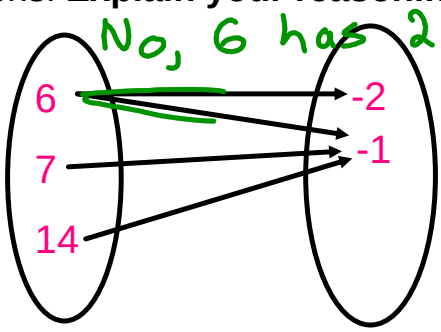
Warm-Up 8/28

For 1-3, determine if the following are functions. **Explain your reasoning.**

1. yes, no x has 2 ys



2. No, 6 has 2 outputs



3. (-2, 4), (4, 15), (-2, 5), (5, 23)

No, -2 has 2 outputs

4. Evaluate f(3) when $f(x) = x^2 - 3$

$f(3) = (3)^2 - 3$
$= 9 - 3$
$= 6$
$f(3) = 6$

Functions

f(x) = 2x - 18 g(x) = x^2 + 3x h(x) = x r(x) = x/3 + 4

Solve each problem below given the above functions. SHOW WORK

1. f(3) = 2. g(3) = 3. h(-2) = -2

4. r(12) = 5. g(-3) = 6. f(-3) = 2(-3)-18
= -6-18
f(-3) = -24

Solve each function for x = 0. Use proper notation below to show the solution to each function.

7. f(0) = 2(0)-18
f(0) = -18
g(0) = 0^2 + 3(0)
g(0) = 0
h(0) = 0
r(0) = 0/3 + 4
r(0) = 4

f(x) = 2x - 18
g(x) = x^2 + 3x
h(x) = x
r(x) = $\frac{x}{3}$ + 4

Today's Goals

I can...

- graph functions
- identify key parts of a graph
- match real world situations to their corresponding graphs and equations

Section 3.4: Function Notation

Function is an equation with 2 variables (x, y)

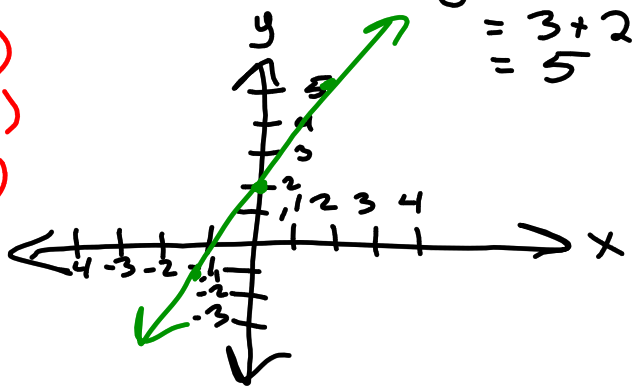
$y = 3x + 2$

$y = 3(-1) + 2 = -3 + 2 = -1$

$y = 3(0) + 2 = 2$

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

x	y
(-1	-1)
(0	2)
(1	5)



Function notation is the way functions are written.

f(x) said, " f of x" it is a function of x

f(x) is interchangeable with y

The ordered pair (x, y) --> (x, f(x))

Example:

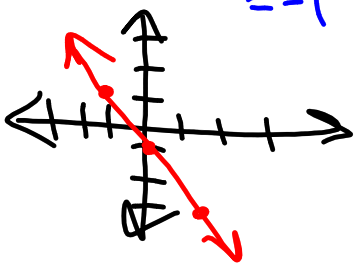
y = -2x-1 can be written as $f(x) = -2x - 1$

x	f(x)
(-1	1)
(0	-1)
(1	-3)

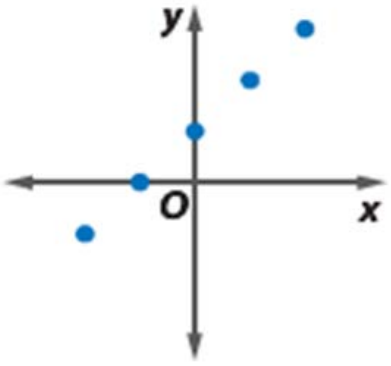
$f(0) = -2(0) - 1 = -1$

$f(-1) = -2(-1) - 1 = 2 - 1 = 1$

$f(1) = -2(1) - 1 = -2 - 1 = -3$

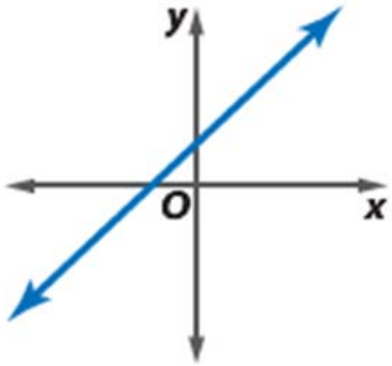


Graph A



discrete relation

Graph B



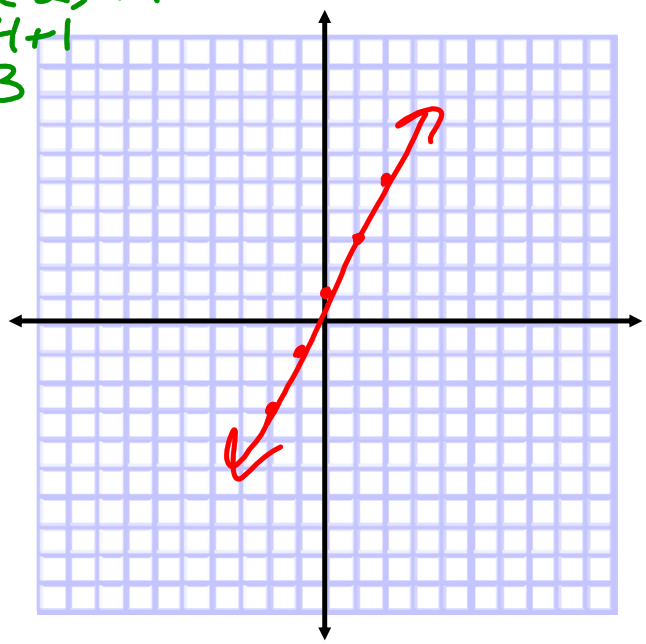
continuous relation

Graph the function given the domain

y = (2x + 1) D:{-2, -1, 0, 1, 2}

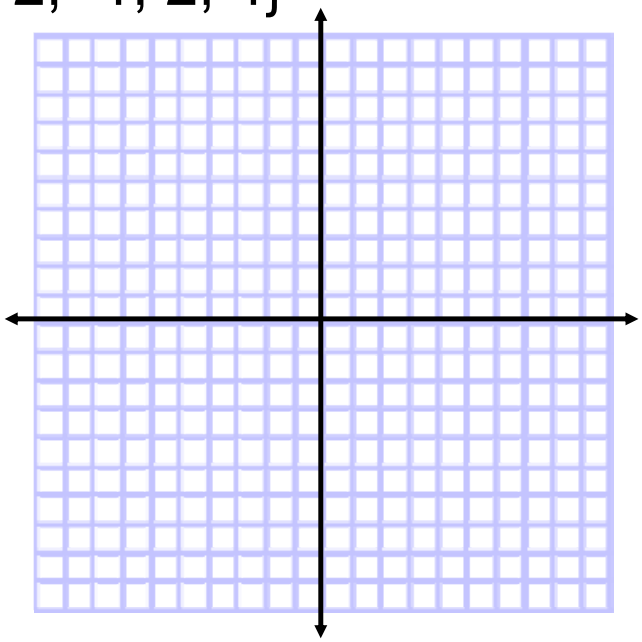
$y = 2(-2) + 1$
$= -4 + 1$
$= -3$

x	y
-2	-3
-1	-1
0	1
1	3
2	5



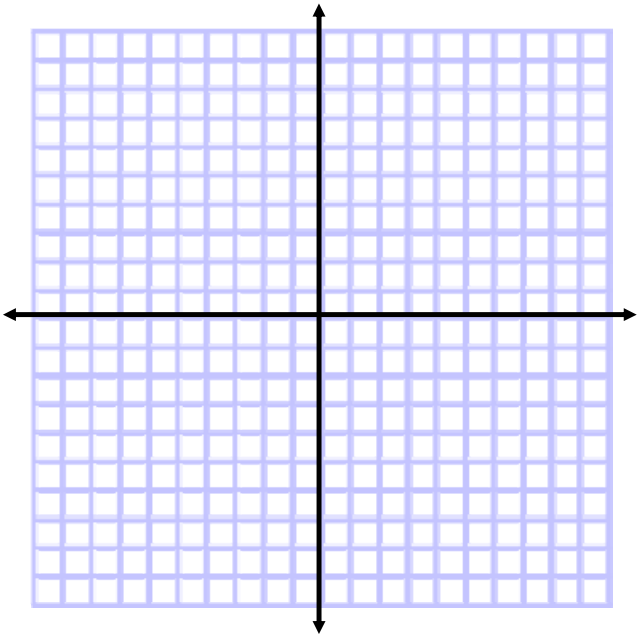
Your Turn
Graph the functions given the domain

f(x) = x + 2; D:{-2, -1, 2, 4}



$f(x) = - |x|$

D: {-5, -3, 0, 3, 5}



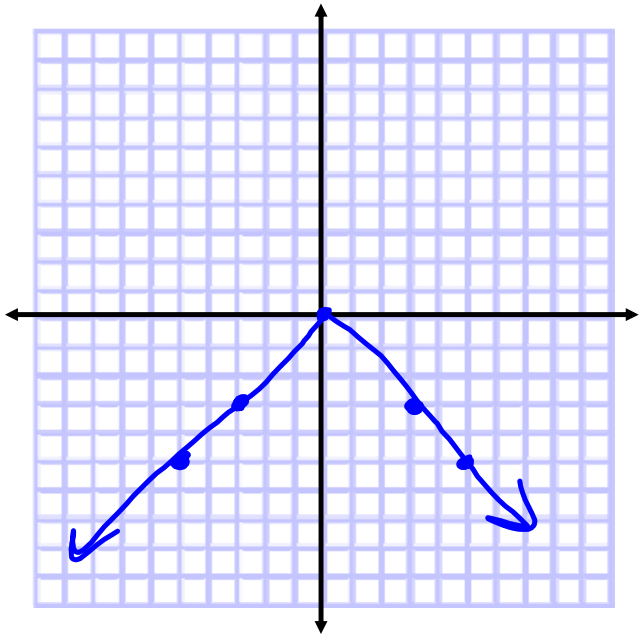
f(x) = -|x|

D: {-5, -3, 0, 3, 5}

x	f(x)
-5	-5
-3	-3
0	0
3	-3
5	-5

$-|-5|$ $-|5|$

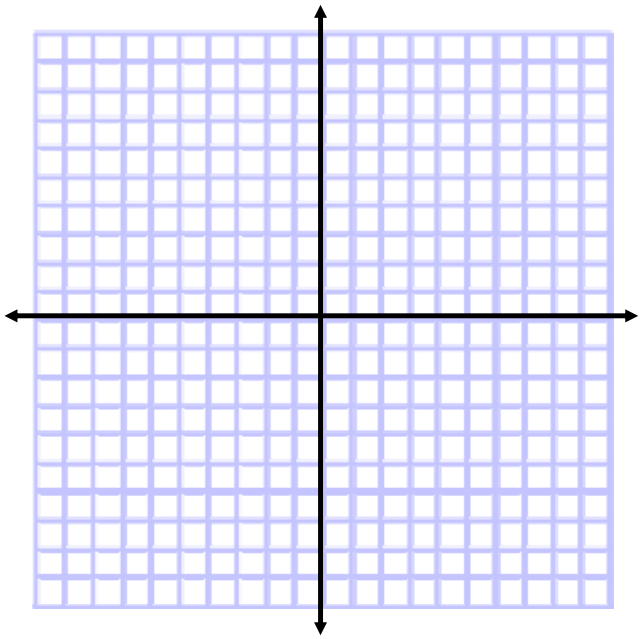
-5 -5

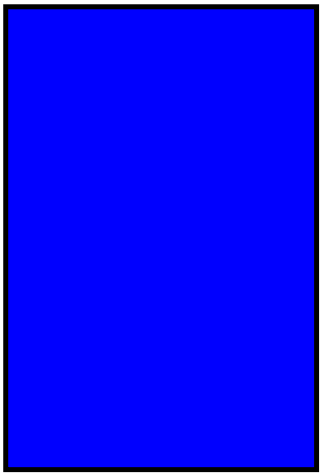


Graph the functions, without a given Domain

$f(x) = x - 1$

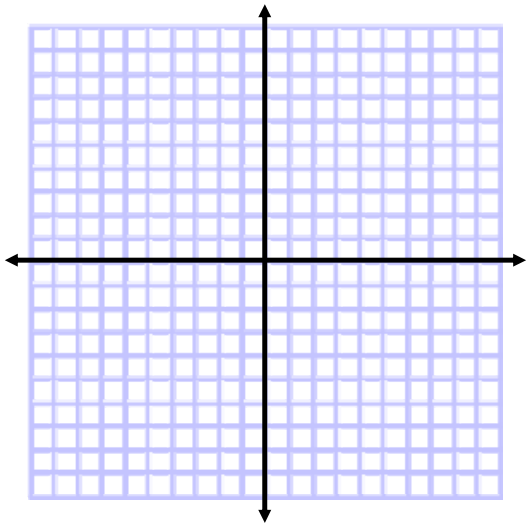
x	f(x)
-1	-2
0	-1
1	0



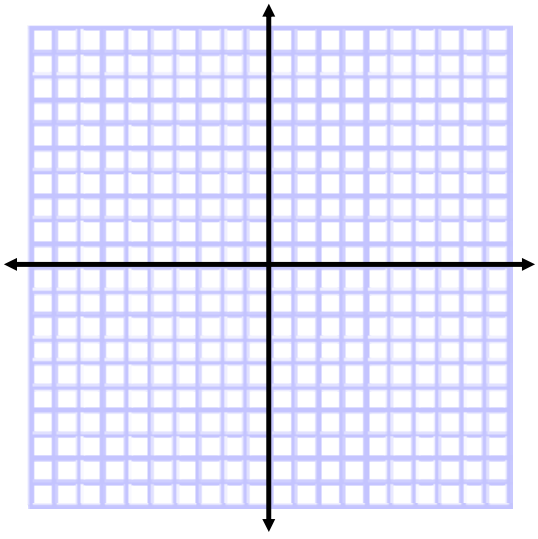


Your Turn
Graph the following.

f(x) = x + 4



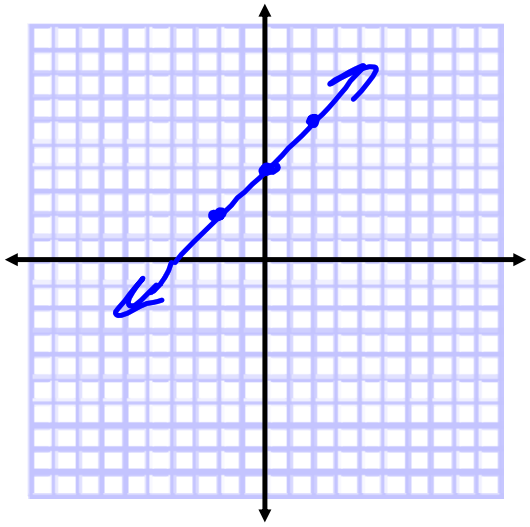
g(x) = -2x - 5



Your Turn
Graph the following.

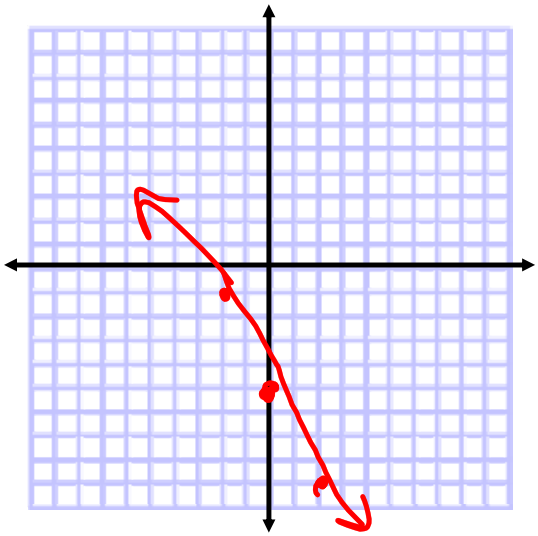
f(x) = x + 4

x	f(x)
-2	2
0	4
2	6



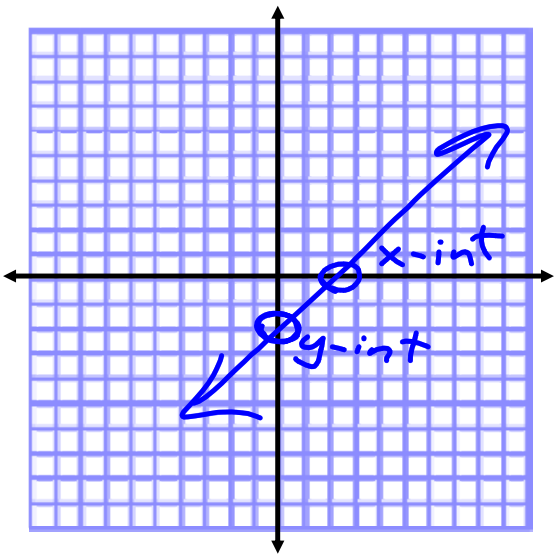
g(x) = -2x - 5

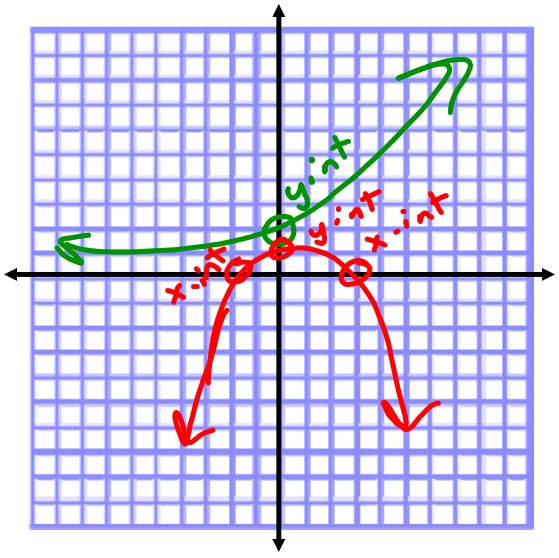
x	g(x)
-2	-1
0	-5
2	-9



y-intercept-where a graph crosses the y-axis (x = 0)

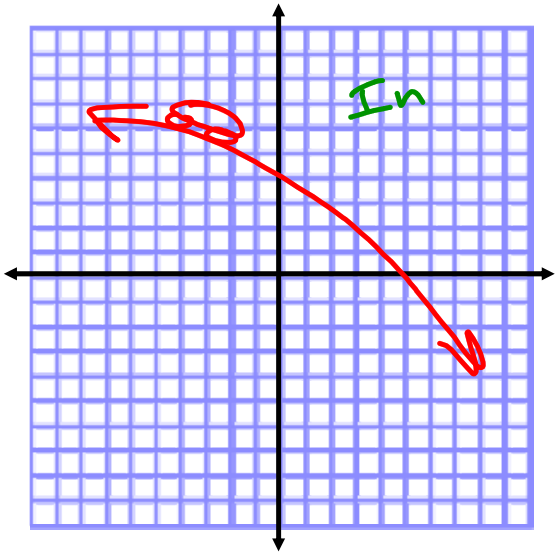
x-intercept-where a graph crosses the x-axis (y = 0)

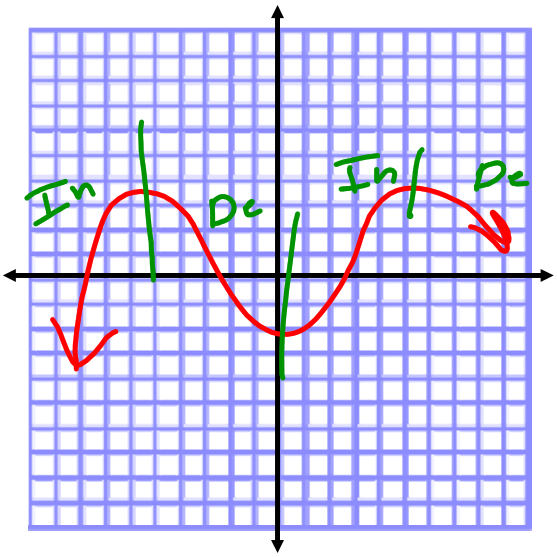




increasing-where a graph's slope is positive

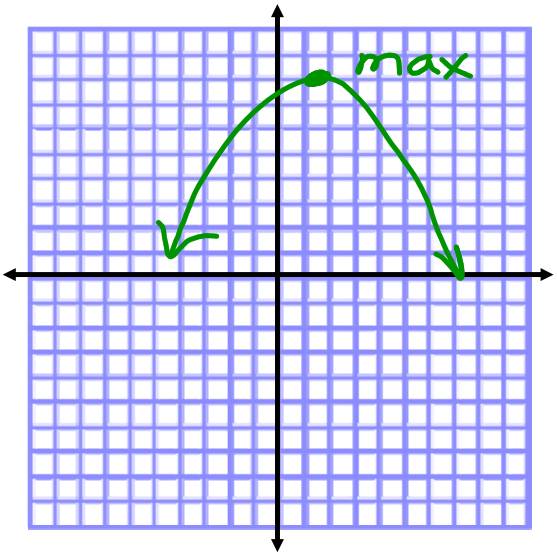
decreasing-where a graph's slope is negative

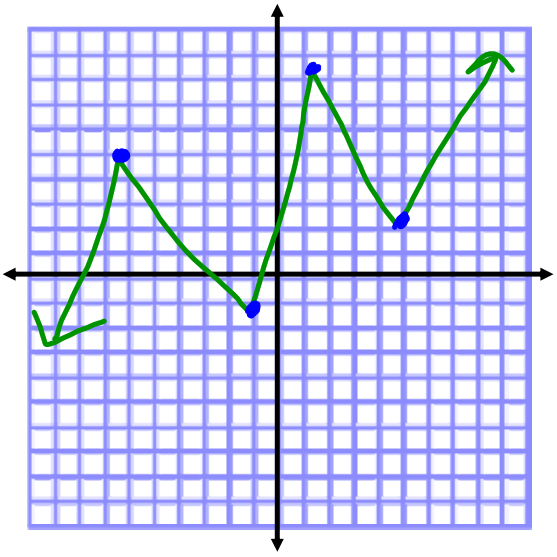




max/min-the highest (max) or lowest (min) point on a graph

relative max/min-the highest (max) or lowest (min) point on a graph **given a certain range**





y-intercept-where a graph crosses the y-axis (x = 0)

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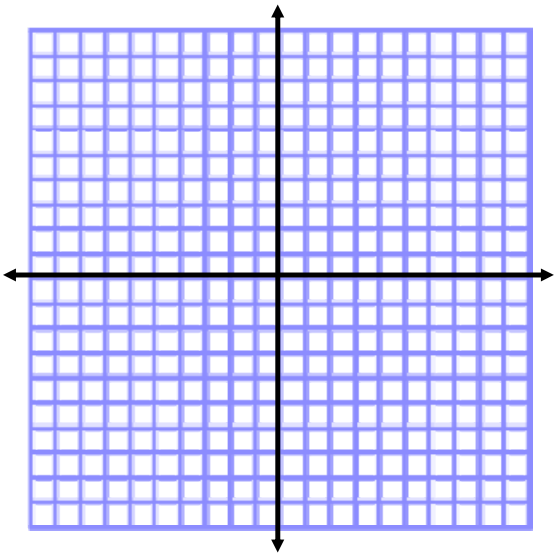
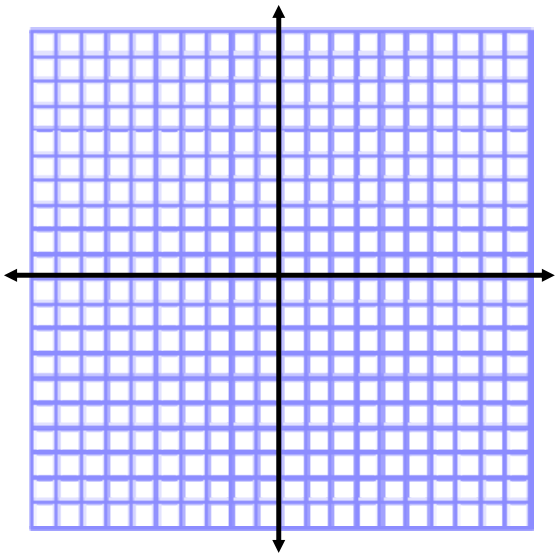
relative max/min-the highest (max) or lowest (min) point on a graph **given a certain range**





Section 3.2: Use graphs to describe relationships

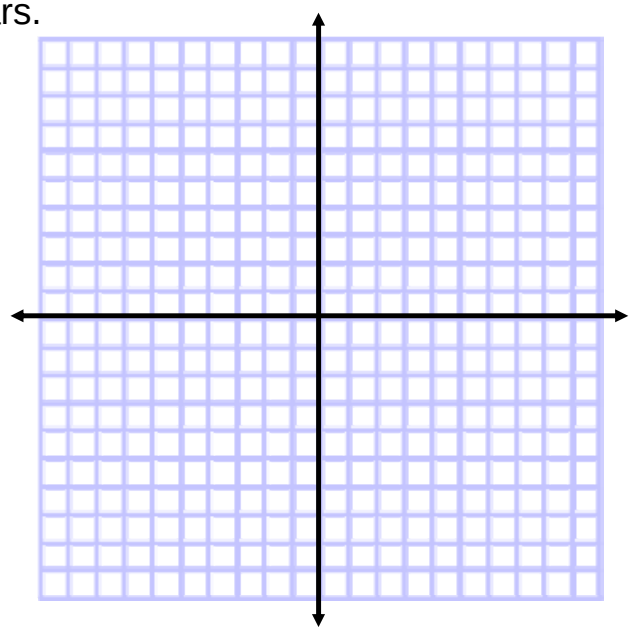
Independent and Dependent variables

Independent Variable - able to stand alone, rely on nothing.

Dependent Variable - rely on the independent variable in order to change.

Application

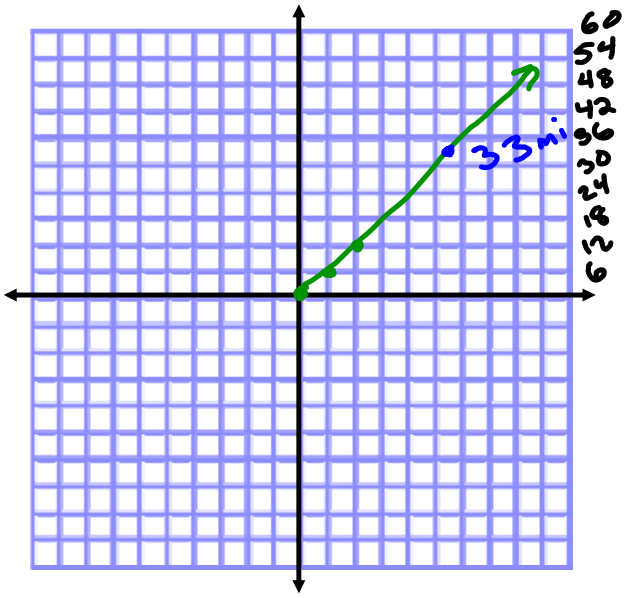
The function y = 2.5x describes how many millimeters sea level y rises in x years. Graph the function. Use the graph to estimate how many millimeters sea level will rise in 3.5 years.



Your turn!

The fastest recorded Hawaiian lava flow moved at an average speed of 6 miles per hour. The function y = 6x describes the distance y the lava moved on average in x hours. Graph the function. Use the graph to estimate how many miles the lava moved after 5.5 hours.

x	y
0	0
1	6
2	12



Homework

Algebra Nation pgs. 69-73

(Section 3 Topic 6-7)