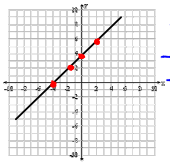
5.1 What is a Function?

Function: A rule in which an input number has one and only one output number.

Examples of Functions:

Input Number x	Output Number y
-4	8
-2	5
0	2
2	-1
4	-4
6	-7



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

$y = 3x - 2$

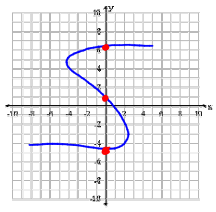
$y = x^2$

(-1, 6) (2, 7) (5 ,9)

x	y
-1	6
2	7
5	9

The following **are not** functions:

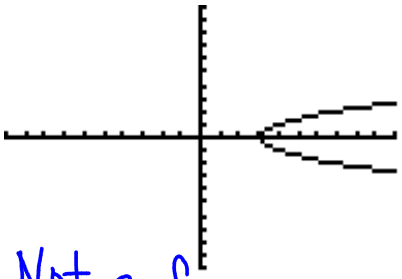
Input Number x	Output Number y
-2	7
-1	6
0	5
1	4
2	3
2	-7



Vertical line test: Pass a vertical line through your graph. If the line intersects the graph in only one place. Then the graph is a fn.

Oct 28-7:53 AM

Are the following functions??



Not a fn. Because a vertical line intersects the graph in more than 1 point.

X	Y
1	3
4	7
6	7
9	12

Yes it is a fn because every input has only 1 output.

Oct 30-2:21 PM

Functions can also be written in words called a rule.

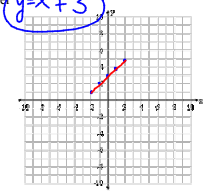
For example:

Rule: Add 5 to a number (y = x + 5)
Rule: Multiply a number by 2 and subtract 1 (y = 2x - 1)

For each of the following rules:
a) make a table of values
b) draw a graph
c) decide if there are any input numbers that cannot be used
d) write and equation

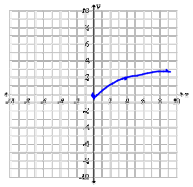
Rule 1: Add 3 to a number $y = x + 3$

x	y
-2	1
-1	2
0	3
1	4
2	5



Rule 2: Determine the positive square root of a number

x	y
-2	err
-1	err
0	0
1	1
2	1.4
3	1.7
4	2



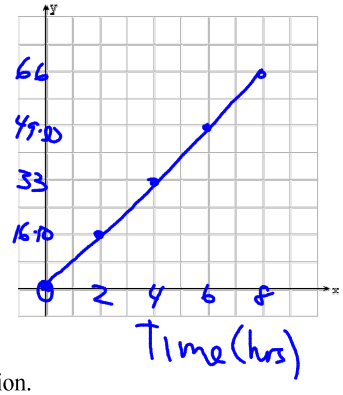
$y = \sqrt{x}$

Oct 28-8:12 AM

Katrina pays her employees $8.25/hr for whole hours only. Let "t" hours represent the time the employees work in a day. Let "d" dollars represent the amount Katrina pays the employees.

a) Make a table of values. Draw a graph of *d* against *t*.

t	d
0	0
2	16.50
4	33
6	49.50
8	66



b) Write an equation for the function.

$y = 8.25x$

c) Suppose Katrina pays another employee $0.50 less per hour. How would the graph and equation change?

$y = 7.75x$

Oct 28-8:19 AM

Each week, the sale price of an item is determined by dividing the original price by 1 more than the week number for the sale. The price of the item is

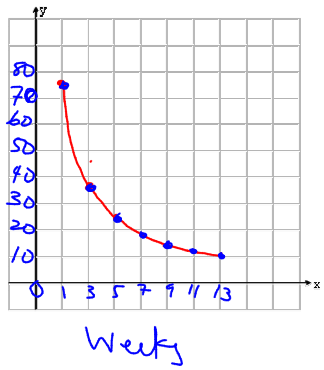
expressed as a function by the formula $s = \frac{p}{n+1}$

where s dollars represents the sale price, p dollars represents the original price and n represents the number of weeks.

a) An iPod originally cost $149.99. Determine the sale price after 1, 3, 5, 7, 9, 11 and 13 weeks

Weeks	Sale price
1	75
3	37.50
5	25
7	18.75
9	15
11	12.50
13	10.71

b) Draw a graph to show how the sale price depends on the number of weeks.



Oct 28-8:25 AM

Assignment:

Pg. 250

1, 4, 5, 7, 10, 11, 17

Mar 29-9:52 AM