

## Today's Learning Goal(s):

Date: \_\_\_\_\_  
(Every lesson)

By the end of the class, I will be able to:

- a) quickly graph the 5 parent functions.
- b) state the domain and range of a function from the graph, table or equation.

Last day's Assigned Practice: **READ pp.14-22**

pp. 22-23 #1, 2, 4 – 7, 9, 10

Funcon Notation Worksheet #1 – 6

(answer keys on class website)

*Done Spring 2020:*  
*If time, show number systems Venn Diagram.*

p. 23

9. Consider the function  $f(s) = s^2 - 6s + 9$ .  $\rightarrow f(\quad) = (\quad)^2 - 6(\quad) + 9$

a) Create a table of values for the function.

b) Determine each value.

i)  $f(0)$

iv)  $f(3) = 0$

ii)  $f(1)$

v)  $[f(2) - f(1)] - [f(1) - f(0)] \rightarrow [1 - 4] - [4 - 9]$

iii)  $f(2)$

vi)  $[f(3) - f(2)] - [f(2) - f(1)]$

c) In part (b), what do you notice about the answers to parts (v) and (vi)?

Explain why this happens.

b) i)  $f(0) = 9$

ii)  $f(1) = (1)^2 - 6(1) + 9 = 4$

iii)  $f(2) = (2)^2 - 6(2) + 9 = 1$

iv)  $f(3) = 0$

v)  $[f(2) - f(1)] - [f(1) - f(0)] = [-3] - [-5] = -3 + 5 = 2$

vi)  $[f(3) - f(2)] - [f(2) - f(1)] = [-3] - [-5] = -3 + 5 = 2$

v) =

$$= [(2^2 - 6(2) + 9) - (1^2 - 6(1) + 9)] - [(1^2 - 6(1) + 9) - (0^2 - 6(0) + 9)]$$

10. The graph at the right shows  $f(x) = 2(x - 3)^2 - 1$ .

**K**

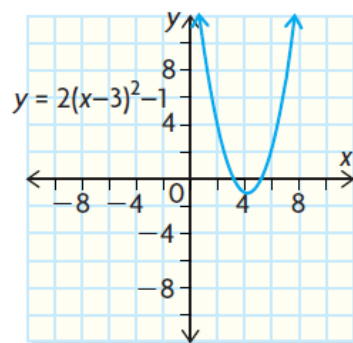
a) Evaluate  $f(-2)$ .

b) What does  $f(-2)$  represent on the graph of  $f$ ?

c) State the domain and range of the relation.

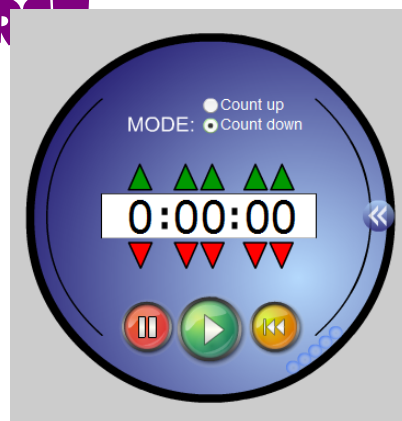
d) How do you know that  $f$  is a function from its graph?

$\hookrightarrow$  passes the VLT.



## SUPER BRIEF QUIZ FIRST

*Time to: Show What You Know*



*Please clear off and separate your desks.*

I have added an activity to our Google Classroom.  
Complete during MSIP using Desmos: Domain and Range

# Hey, students!

Go to [student.desmos.com](https://student.desmos.com)  
and type in:

**5GC KSG**

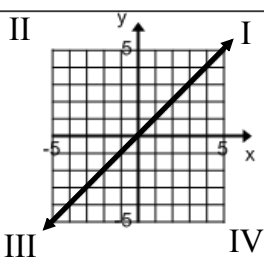
You can also share this link with your students:

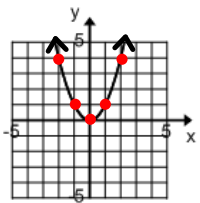
<https://student.desmos.com/?prepopulateCo>

## 1.3 Parent Functions

## 1.4 Domain &amp; Range (revisited)

Date: Feb. 24/20  
(Every lesson)

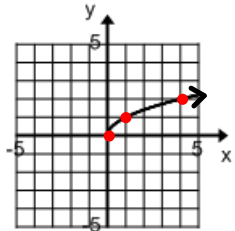
Equation of Function	Name of Function	Sketch of Graph	Special Features/ Symmetry	Domain	Range
$f(x) = x$	Linear		<ul style="list-style-type: none"> <li>· Straight line</li> <li>· Goes through origin</li> <li>· In QI and QIII</li> </ul>	$\{x \in \mathbb{R}\}$	$\{y \in \mathbb{R}\}$

Equation of Function	Name of Function	Sketch of Graph	Special Features/ Symmetry	Domain	Range
$f(x) = x^2$	Quadratic		<ul style="list-style-type: none"> <li>· Parabola opening up</li> <li>· Vertex at origin</li> <li>· y-axis is A. of S.</li> <li>· In <math>\mathbb{Q}^+</math> and <math>\mathbb{Q}^+</math></li> </ul>	$\{x \in \mathbb{R}\}$	$\{y \in \mathbb{R} \mid y \geq 0\}$

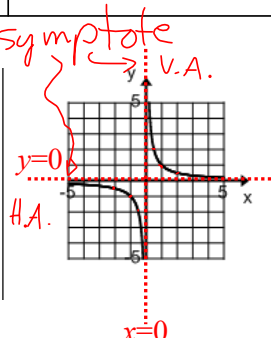
Key Points: (0,0)

(1,1) (-1,1)

(2,4) (-2,4)

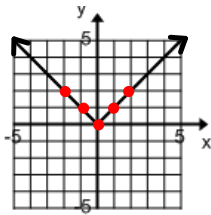
Equation of Function	Name of Function	Sketch of Graph	Special Features/ Symmetry	Domain	Range
$f(x) = \sqrt{x}$	Square Root		<ul style="list-style-type: none"> <li>• Curve</li> <li>• Starts at origin</li> <li>• Only in <math>Q_1</math></li> </ul>	$\{x \in \mathbb{R} \mid x \geq 0\}$	$\{y \in \mathbb{R} \mid y \geq 0\}$

Key Points: (0,0)  
(1,1)  
(4,2)

Equation of Function	Name of Function	Sketch of Graph	Special Features/ Symmetry	Domain	Range
$f(x) = \frac{1}{x}$	Reciprocal		<ul style="list-style-type: none"> <li>Asymptotes at x-axis and y-axis</li> <li>In Q<sub>I</sub> and Q<sub>III</sub></li> <li>Curves toward but never crosses asymptotes</li> </ul>	$\{x \in \mathbb{R} \mid x \neq 0\}$	$\{y \in \mathbb{R} \mid y \neq 0\}$

Key Points:  $(1,1)$   $(-1,-1)$   
 $\left(2, \frac{1}{2}\right)$   $\left(-2, -\frac{1}{2}\right)$   
 $\left(\frac{1}{2}, 2\right)$   $\left(-\frac{1}{2}, -2\right)$

$$\frac{1}{\frac{1}{2}} = 1 \div \frac{1}{2} = 1 \times \frac{2}{1} = 2$$

Equation of Function	Name of Function	Sketch of Graph	Special Features/ Symmetry	Domain	Range
$f(x) =  x $	Absolute Value		<ul style="list-style-type: none"> <li>· V that opens up</li> <li>· y-axis is A. of S.</li> <li>· In <math>\mathbb{Q}</math> and <math>\mathbb{Q}^+</math></li> </ul>	$\{x \in \mathbb{R}\}$	$\{y \in \mathbb{R} \mid y \geq 0\}$

Key Points: (0,0)

(1,1) (-1,1)

(2,2) (-2,2)



$$\begin{array}{l} |x| \\ |2| \\ = 2 \end{array} \quad \left\{ \begin{array}{l} |-2| \\ = |2| \end{array} \right. \quad \left\{ \begin{array}{l} |3-7| \\ = |-4| \\ = 4 \end{array} \right.$$

**Assignment - hand in at the beginning of next class**

On a full size sheet of graph paper, graph the following functions.

- Identify the key points for each function
- Use a scale of 1 box = 1 unit
- State the Domain and Range

$$y = \sqrt{x}$$

$$y = |x|$$

$$y = \frac{1}{x}$$

**Are there any Homework Questions you would like to see on the board?**

Last day's work: pp. 22-23 #1, 2, 4 – 7, 9, 10

Funcon Notation Worksheet #1 – 6

(answer keys on class website)

Today's Homework Practice includes:

p. 28 #1 - 3

pp. 35-37 #4, 9, 11 [16, 17]

*... me for more?? -->*

*If time, show number systems Venn Diagram.*

Review of Functions thus far: *FOR QUIZ??*

1. What is a function?

- Given a set, equation, graph, table of values

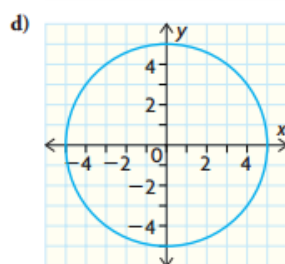
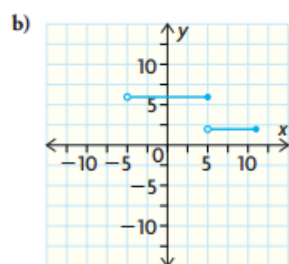
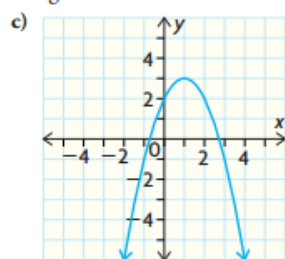
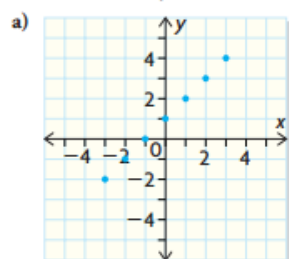
2. Domain and Range

- Given a function state the domain and range using proper notation (function given as a set, table or graph)

3. Function notation  $f(x)$

- Write an equation using function notation instead of  $y =$
- Substitute to find the value of a function when given  $x$
- Find  $f(x)$  when given the graph and a value for  $x$
- Find  $x$  when given the value of the function

For each relation, state the domain and range and whether the relation is a function.



e) Student Marks

$\{(Trevor, 89), (Justyn, 90), (Ethan, 76), (Dustin, 90), (David, 56)\}$

f)  $\{(3, 5), (4, 6), (9, 13), (12, 7), (3, 7)\}$

If  $f(x) = -3x + 5$  and  $g(x) = 3(x - 2)^2 + 5$

Determine each of the following:

- a)  $f(3)$                       b)  $g(3)$                       c) Determine  $x$  if  $f(x)$  is 11