

Bell Work:

Identify the following:

Max or Min

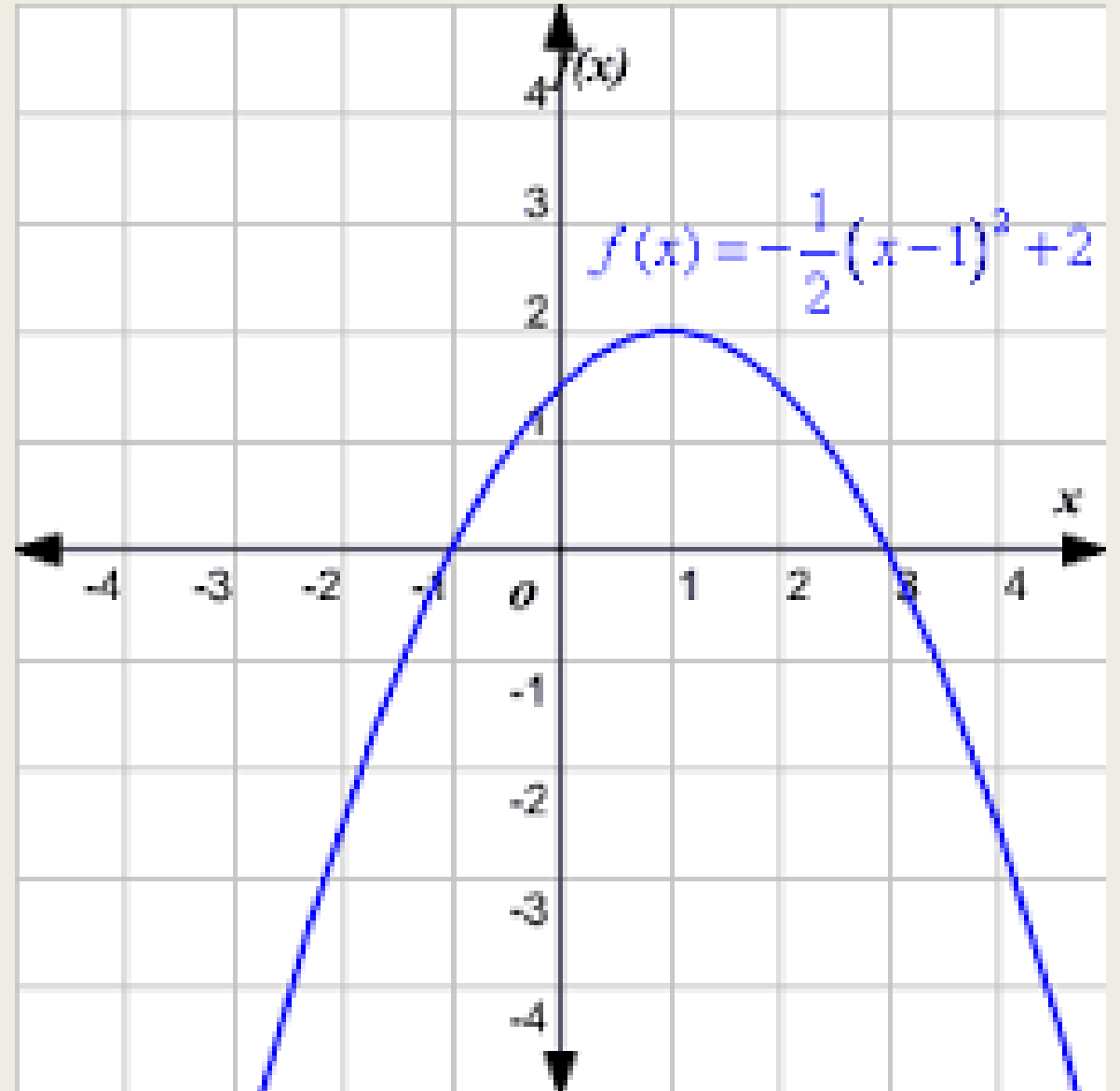
Y-Intercept

X-Intercept (root)

Domain

Range

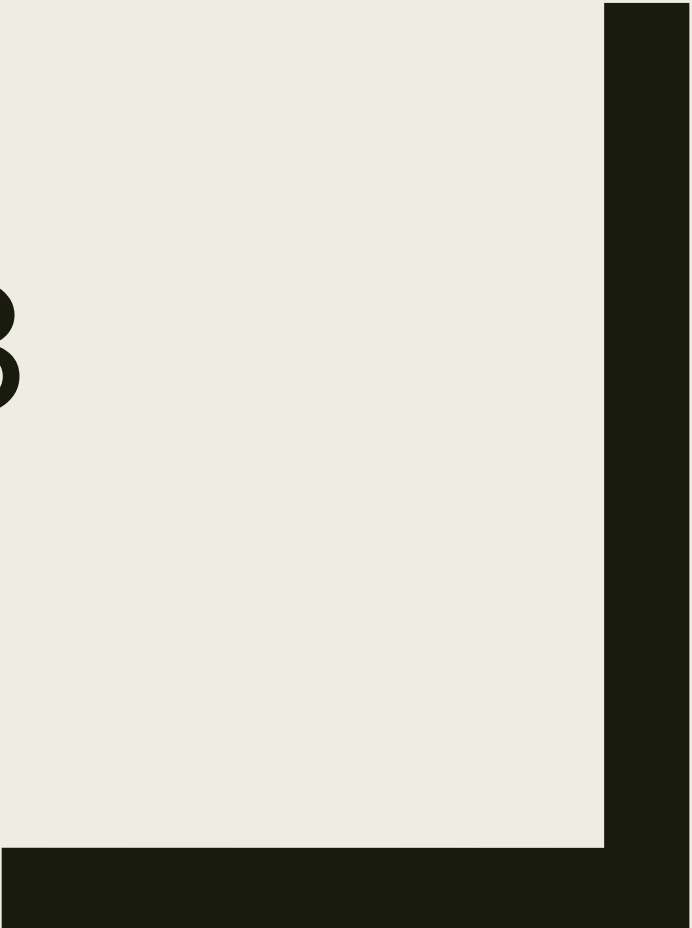
End Behavior





ALGEBRA 3

Day 15



Chapter 2 Section 1

Relations and Functions

Objective: To be able to identify, and compare/contrast relations and functions

Introduce Domain and Range

Relation vs Function

- **Relation:** a mapping, or pairing, of input values with output values
- **Function:** if there is exactly one output for each input
(One y for each x ... Not a function if one x has more than one y)

Example: Is the following a relation or function? Why?

1.) $(3, 4)$ $(5, 0)$, $(-1, 4)$

2.) $(1, 3)$ $(-2, 12)$ $(1, 2)$

Another way to ask the same thing...

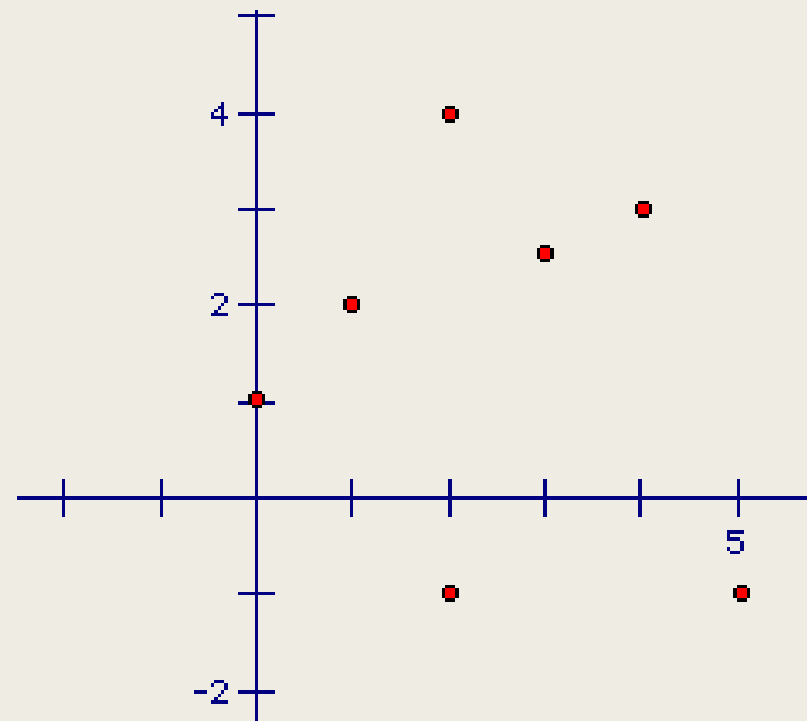
$$\begin{array}{c} \underline{X} \\ \left(\begin{array}{c} -3 \\ 1 \\ 4 \end{array} \right) \end{array} \begin{array}{c} \longrightarrow \\ \longrightarrow \\ \longrightarrow \\ \longrightarrow \end{array} \begin{array}{c} \underline{Y} \\ \left(\begin{array}{c} 3 \\ -2 \\ 1 \\ 4 \end{array} \right) \end{array}$$

$$\begin{array}{c} \underline{X} \\ \left(\begin{array}{c} -3 \\ 1 \\ 3 \\ 4 \end{array} \right) \end{array} \begin{array}{c} \longrightarrow \\ \longrightarrow \\ \longrightarrow \\ \longrightarrow \end{array} \begin{array}{c} \underline{Y} \\ \left(\begin{array}{c} 3 \\ 1 \\ -2 \end{array} \right) \end{array}$$

Another great way to determine if a relationship is a function is to graph (or at least visualize a graph) it

- Vertical Line Test: A relation is a function if and only if no vertical line intersects the graph of the relation at more than one point

Example: Is it a function?



Intro to Domain and Range

- **Domain:** input values (*usually x*)
- **Range:** output values (*usually y*)

Ex: Graph then state Domain and Range.

1.) $y = \frac{1}{3}x - 5$

2.) $y = 4x^2 - 9$

3.) $y = x^3 - 2x$

Have you seen or heard of function notation? Let's chat...

For example:

$$f(x) = 5x - 8$$

or

$$g(x) = x^2 + x + 6$$

For Next Time...

New Material

Page 64 #1-5, 11-15, 17-19, 35

Mixed Review

Page