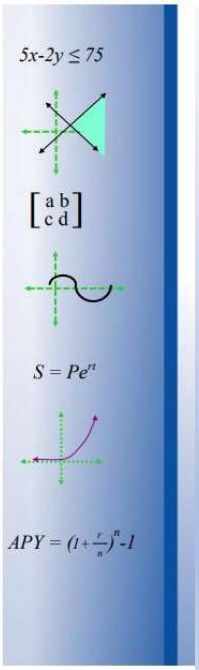


Math 1090 ~ Business Algebra

Section 1.5 Functions

Objectives:

- Identify relations that are functions.
- Use the vertical line test to distinguish a function.
- Determine the domain and range of a function presented graphically.
- Evaluate a function or relation at a given input value or expression.

relation vs. function

- domain:

- range:

Ex. 1: Which of these relations are functions?

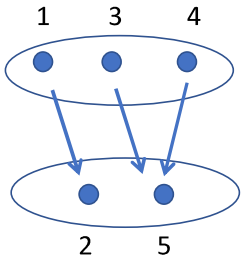
	Input	Output
a)	x = person	y = their phone
b)	x = student at the UofU	y = location at 9 am on first day of the semester
c)	x = person	y = places they have lived
d)	x = Math 1090 student	y = grade in Math 1090 this semester

Different Ways to Describe functions

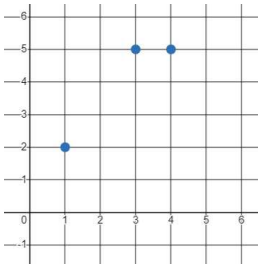
- Ordered pairs {(1,2), (3,5), (4,5)}
- Tables:

Input	Output
1	2
3	5
4	5

- Drawings



- Graphs

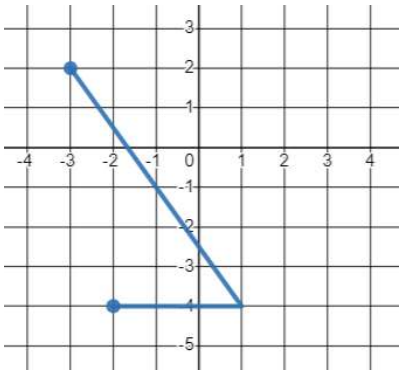


- And algebraic notation

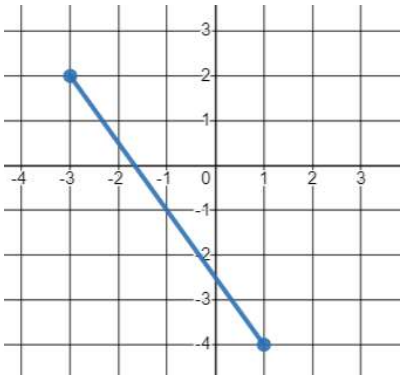
Vertical line test. If we graph all the ordered pairs of a relation on a Cartesian coordinate system, and every vertical line goes through the graph at most one time, then it is a function.

Ex. 2: Are these functions? If no, explain why not. If yes, give the domain and range.

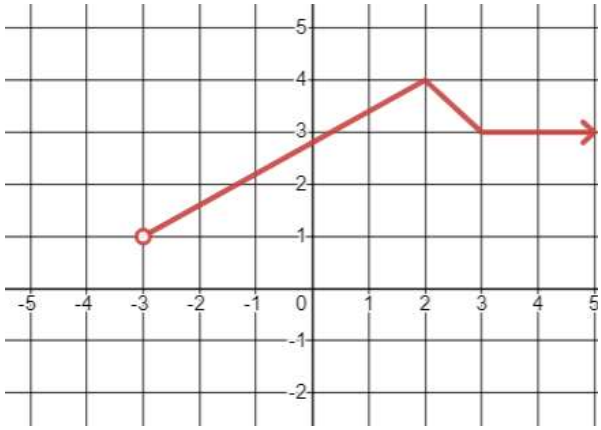
a.)



b.)



Ex. 3: Find the domain and range of this function.



Ex. 4: Given $f(x) = 4x^2 - 5x$, find

a) $f(-2)$

c) $f(a)$

b) $f(2)$

d) $f(x - h)$