

Algebra I
Lesson 1.8 – Introduction to Functions
Mrs. Snow, Instructor

We have looked at variables, coefficients, like terms, expressions, simplifying expressions, and the list goes on. Why? Well, in an attempt to understand and even control man’s environment, humans have found it necessary to describe the precise language of these numerical relationships in terms of a special field of mathematics – the theory and application of relations and functions. In almost all fields of pure and applied science, people work with numbers; most often it is a relationship between pairs of numbers. Wow! That sounds intense, and yes it is. This is a major part of algebra, the study of relationships and specialized relationships called functions. We need to understand how to use and apply what we have studied so far, so as to proceed to the real “nuts and bolts!”

Functions can help us figure out what speed we need to drive if we want to travel a set distance in a certain amount of time. We can figure out a total cost for tickets to be bought at a movie theater or decide how many cookies to be bake so that each classmate gets 3 cookies or how many if we just go with 2 cookies. In nearly every area of daily life we use functions to help us solve problems.

Vocabulary:

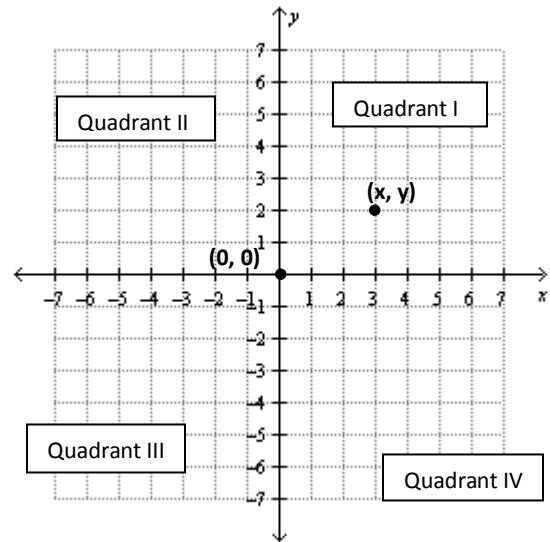
coordinate plane: intersection of two perpendicular number lines or **axes**; each section of the plane is called a **quadrant**

origin: point of intersection of the perpendicular lines

x-axis: horizontal number line

y- axis: vertical number line

ordered pair: points on the coordinate plane, written in terms of an **x-coordinate**, and a **y-coordinate** (x, y) ; observe it is alphabetical order: *(horizontal, vertical)*

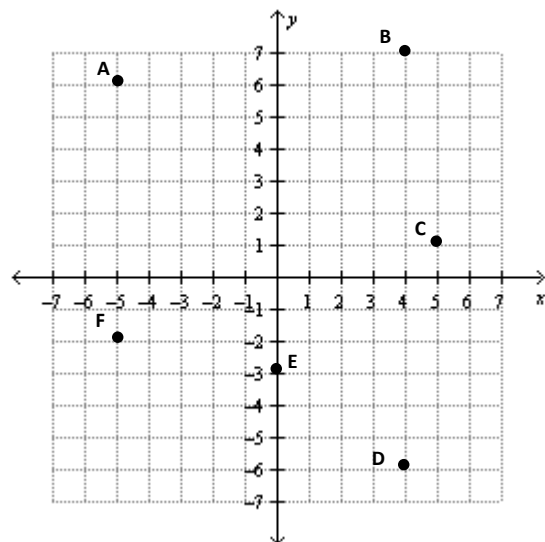


Graph each point:

$R(3, 4)$, $S(-2, 3)$, $T(0, 5)$, $U(-4, -4)$, $W(1, -3)$

Name the quadrant each point is located in and list the ordered pair:

A	B	C
D	E	F

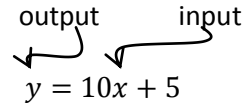


In Algebra I we will study functions that have equations with 2 variables. These 2 variables can be used to generate the ordered pairs.

Vocabulary:

input: a selected value for **x**, the **independent variable**

output: a value generated for **y**, the **dependant variable**



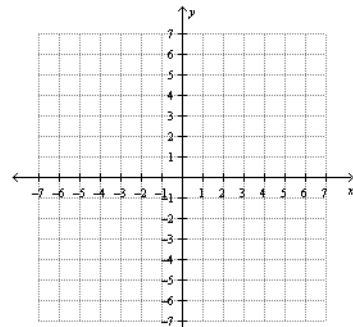
In a function **x** is the boss, it determines the **output, y**.

Cool Ride Taxi Cab charges passengers \$5 plus \$0.35 for each mile driven. Write an equation for the taxi fare. ID the input – independent – x-variable and ID the output – dependent variable. What will the cost of the ride be for 5 miles? 10 miles? *Which one is the determining one (the boss)?*

Given the following input values (x), calculate the output values (y), list as ordered pairs, graph, and describe the shape of the graph:

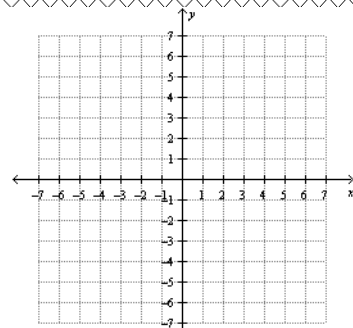
$$y = 3x + 5$$

x	y
-1	
0	
1	
2	



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

x	y
-1	
0	
1	
2	



$$y = |x - 2|$$

x	y
-1	
0	
1	
2	

