

A _____ is a pairing of _____ values with _____ values.

The _____ is the _____ values and usually represented with _____.

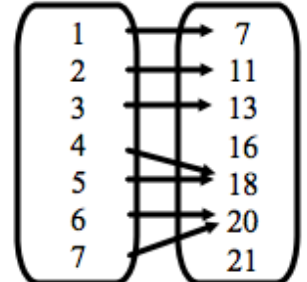
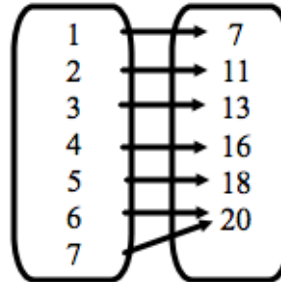
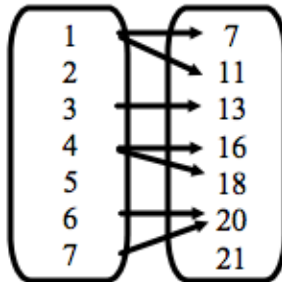
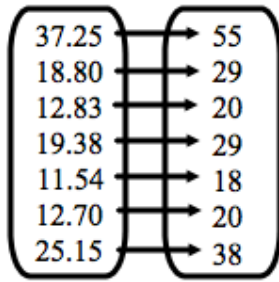
The _____ is the _____ values and usually represented with _____.

There are four ways to represent a relation: _____

_____, _____, _____.

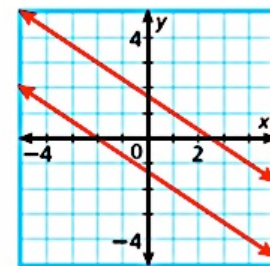
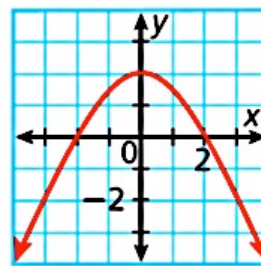
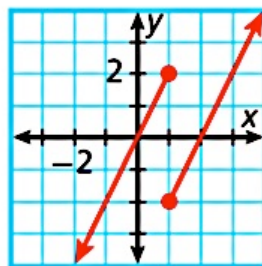
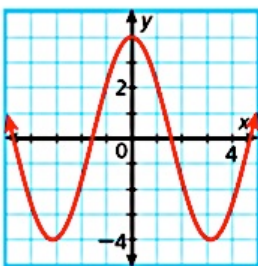
A _____ is a relation that has only _____ value for every

_____. No _____ repeat!



The Vertical Line Test – If a _____ line touches more than one _____ simultaneously, then the graph is _____ a function.

Which of these graphs shows a function?



Function Notation: $f(x) = 5x + 3$

independent variable – _____

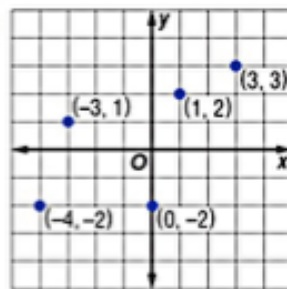
dependent variable – _____

Types of functions:

one-to-one function – Graph passes both the _____ line test and a _____ line test. No _____ and no _____ repeat.

discrete function – set of _____ points that are _____ connected.

continuous function – the relation can be graphed or traced with a _____ or _____ curve. Traced _____ picking up pencil.



$\{(-3, 0), (-2, 2), (-1, 4), (0, 6), (1, 8)\}$

Domain: _____

Range: _____

Function? _____

What kind? _____

Domain: _____

Range: _____

Function? _____ What kind? _____

Given: $f(x) = 5x + 3$

If the domain of $f(x)$ is $\{-1, 0, 1, 2\}$, then what is the range of $f(x)$? _____

Is it a continuous or discrete function? _____

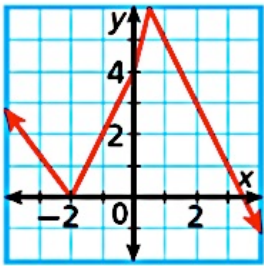
If the domain of $f(x)$ is all real numbers, then what is the range of $f(x)$? _____

Is it a continuous or discrete function? _____

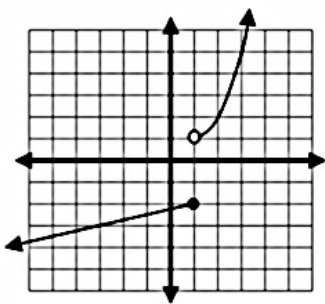
Evaluate:

$$g(x) = x^2 - x - 2 \quad g(-1) = \underline{\hspace{2cm}} \quad g(0) = \underline{\hspace{2cm}} \quad g(w) = \underline{\hspace{4cm}}$$

$$h(x) = 4x^2 + 7x \quad h(-2) = \underline{\hspace{2cm}} \quad h(a) = \underline{\hspace{4cm}} \quad h(t + 1) = \underline{\hspace{4cm}}$$



$$f(-2) = \underline{\hspace{2cm}} \quad f(0) = \underline{\hspace{2cm}} \quad f(3) = \underline{\hspace{2cm}}$$



$$g(-3) = \underline{\hspace{2cm}} \quad g(1) = \underline{\hspace{2cm}} \quad g(3) = \underline{\hspace{2cm}}$$

$$f(x) = -(x + 3)^2 + 4$$

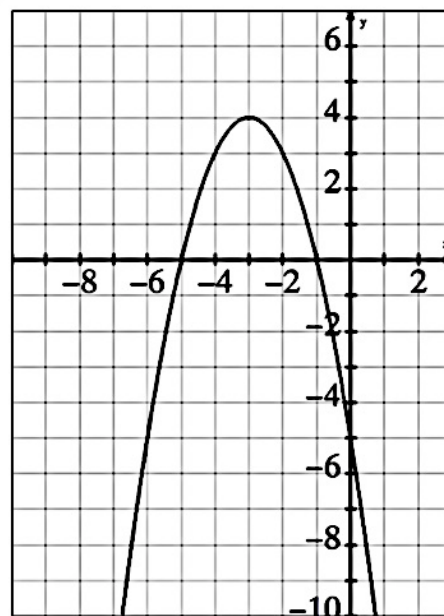
On what interval(s) of x is $f(x)$ positive?

On what interval(s) of x is $f(x)$ negative?

For what value(s) of x is $f(x) = 0$?

On what interval(s) of x is $f(x)$ increasing?

On what interval(s) of x is $f(x)$ decreasing?



Critical Thinking Questions 2-1

1. Why does the Vertical Line Test help us decide if a graph is a function?
2. Give two examples of real-world applications that are best modeled by a discrete function.
3. Give two examples of real-world applications that are best modeled by a continuous function.