

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Class Number: \_\_\_\_\_

**Discrete vs. Continuous**

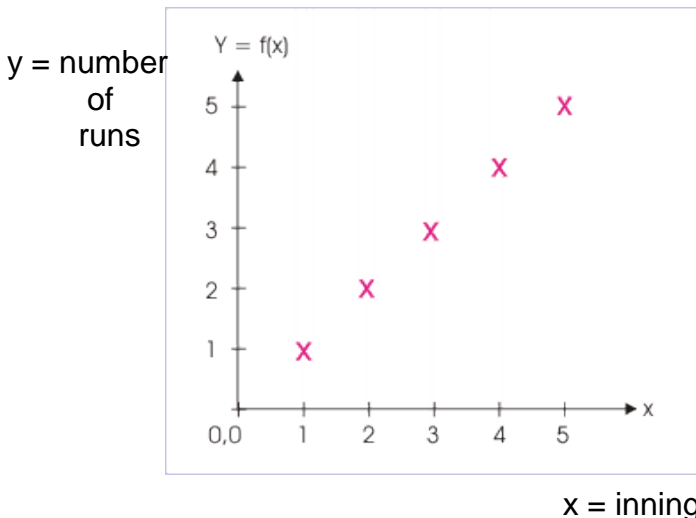
A discrete unit: \_\_\_\_\_

What does this mean? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

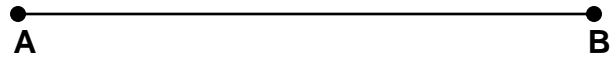
We \_\_\_\_\_ things that are discrete.

A collection of discrete units will: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_For example: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The graph of a Discrete function will be made up of coordinate pairs that do not connect together.

A continuous whole: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Consider the distance from A and B.

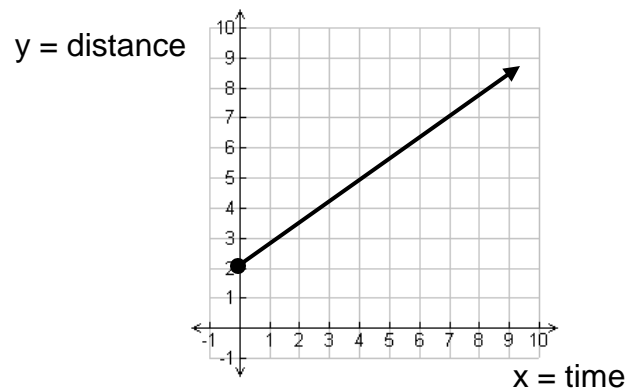


There is nothing to \_\_\_\_\_. As we go from A to B, the line \_\_\_\_\_ without a break.

Since the length from A to B is continuous, we could take any part we please, for example: \_\_\_\_\_  
\_\_\_\_\_

Therefore, we say that Continuous functions are for: \_\_\_\_\_

The graph of a Continuous function will be made up of coordinate pairs that do connect together to form a line or curve.



Which of these are continuous (C) and which are discrete (D)?

a) A stack of coins: \_\_\_\_\_

b) The distance from here to the Moon: \_\_\_\_\_

c) A bag of apples: \_\_\_\_\_

d) Applesauce: \_\_\_\_\_

d) A dozen eggs: \_\_\_\_\_

e) 60 minutes: \_\_\_\_\_

f) Pearls on a necklace: \_\_\_\_\_

g) The area of a circle: \_\_\_\_\_

1. In your own words describe the difference between discrete and continuous functions:

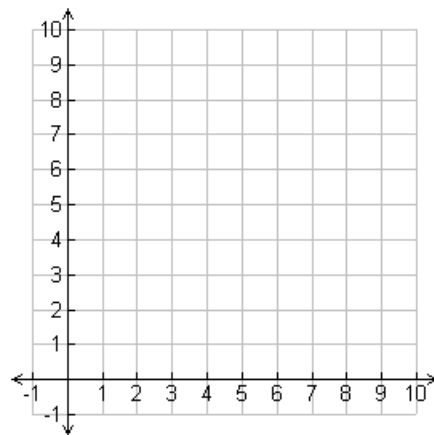
2. Which of these are continuous (C) and which are discrete (D)?

- a) The volume of a sphere. \_\_\_\_\_
- b) A gallon of water. \_\_\_\_\_
- c) Molecules of water. \_\_\_\_\_
- d) The acceleration of a car as it goes from 0 to 60 mph. \_\_\_\_\_
- e) The changing shape of a balloon as it's being inflated. \_\_\_\_\_
- f) Sentences. \_\_\_\_\_
- g) Thoughts. \_\_\_\_\_
- h) The height of corn plants. \_\_\_\_\_
- i) The number of ears of corn produced. \_\_\_\_\_
- j) The number of green M&M's in a bag. \_\_\_\_\_
- k) The time it takes for a car battery to die. \_\_\_\_\_

3. For the function  $f(x) = \frac{1}{2}x$  that measures the height of a plant in inches after a number of days:

a) Make a table of values and graph the function:

| x | y |
|---|---|
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |



b) True or False: The plant's height can be measured in parts of an inch? \_\_\_\_\_

c) Is this function Discrete or Continuous? \_\_\_\_\_