

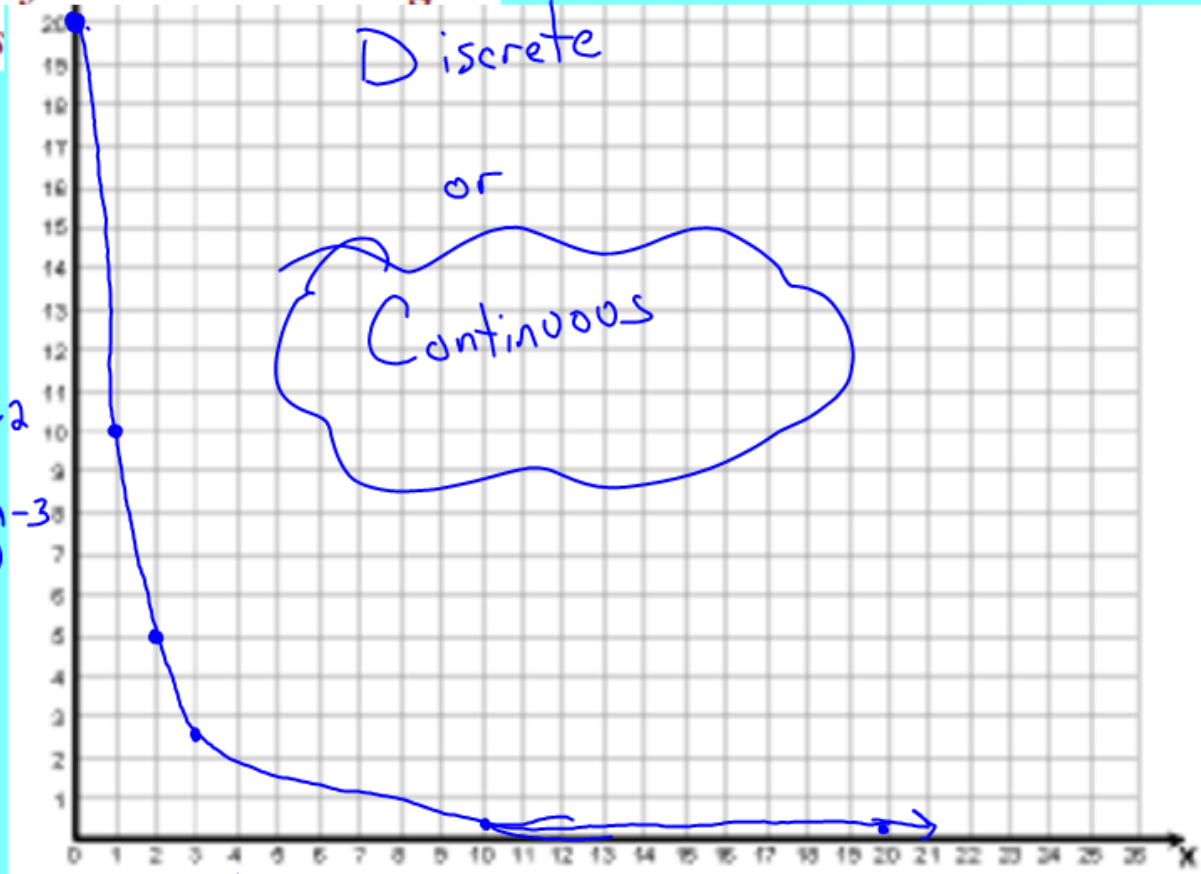
# Warmup:

*Situation 1: You have 20 liters of water on a very hot day. You realize that the volume of your water halves each hour. How many liters do you have remaining at the end of 1, 2, 3, and 10 hours*

Hours	Volume of Water
0	20
1	10
2	5
3	2.5
10	.019
20	.000019
100	$1.5777 \times 10^{-29}$
1000	0

$y = 5(.5)^{n-2}$   
 $y = 2.5(.5)^{n-3}$

$y = a \cdot b^x$



$a_n = a_1 (r)^{n-1}$

20, 10, 5, 2.5, ...

$20(.5)^{t-0}$

$20(.5)^x$

$20(.5)^t$

$a_n = 10(.5)^{n-1}$

$y = 20(1-.5)^t$

$a(1-r)^t$

explicit formula geometric sequence.

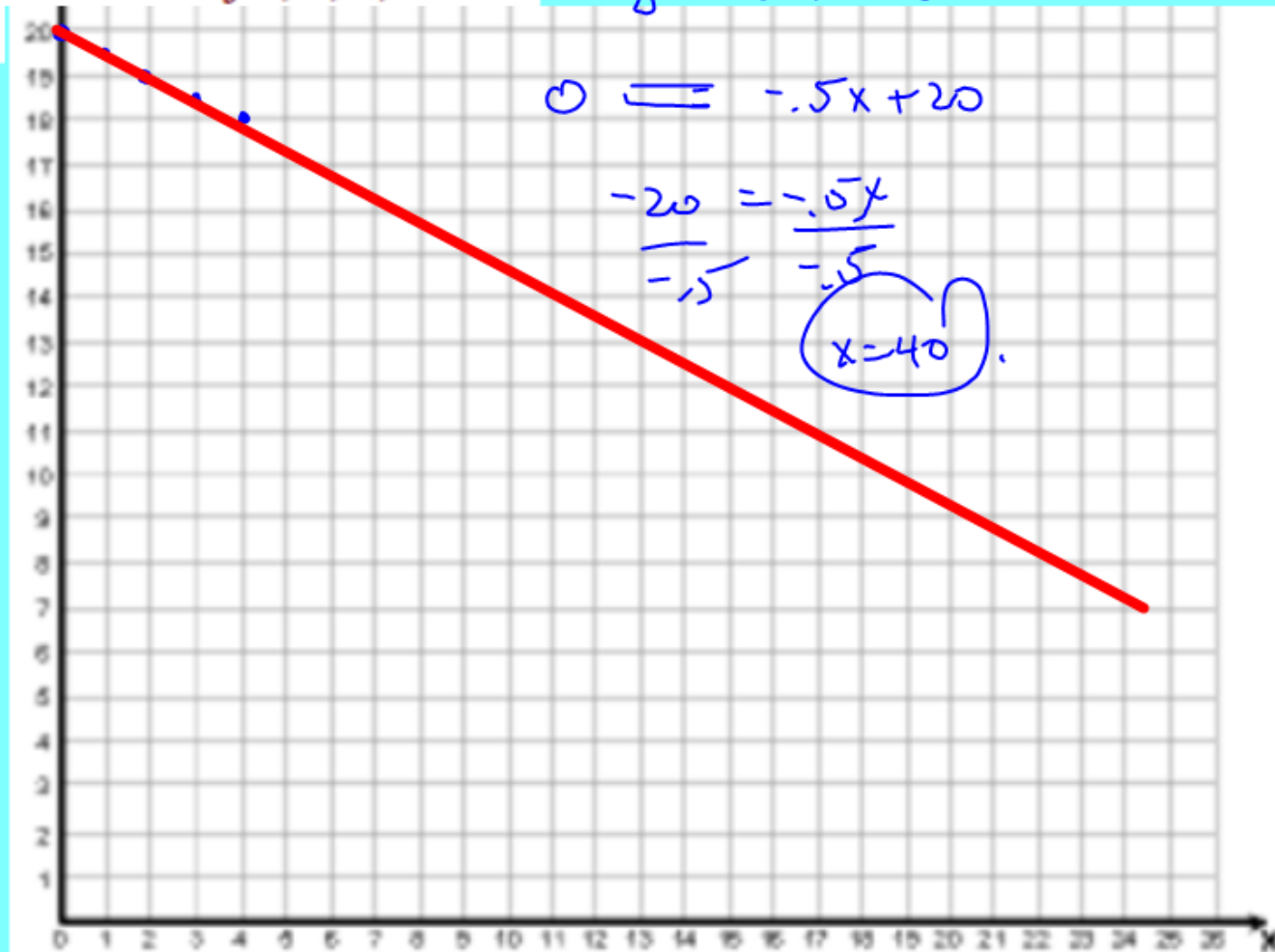
exponential decay

**Situation 2:** You have 20 liters of water, but this time, it is leaking out at a rate of  $\frac{1}{2}$  liter per hour. How many liters do you have remaining at the end of 1, 2, 3, and 10 hours?

Hours	Volume of Water
0	20
1	19.5
2	19
3	18.5
10	15
20	10
100	0
1000	0

constant rate of change.

Linear  $y = mx + b$   
 $y = -0.5x + 20$



# The Birthday Gift Problem

As a group, read the  
Birthday Gift Problem.

Complete the chart showing  
Mary and Jane's Birthday  
Gifts.

Graph a representation of  
each of their birthday gifts  
on the same coordinate  
plane.

Answer questions 1 through  
5 regarding Mary and Jane's  
Birthday gifts.

**Time Limit: 20 Minutes**

# Matching Activity

Complete the chart showing the matches of the situations, equations, and graphs.

You will have to write 2 equations as a group to complete the chart!!

# The Turtle Problem

Read the scenario

Complete the Chart

Create a Graph

Answer questions 1 through 4