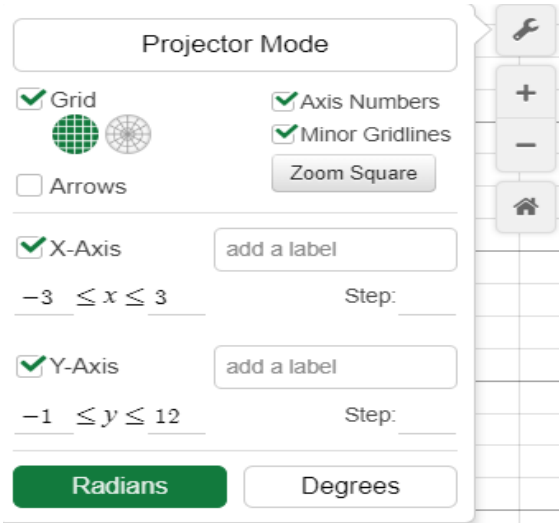


1.1.2 The Graphs of Exponential Functions

Date: _____

Step 1:

Using **desmos**, adjust to the following window settings.



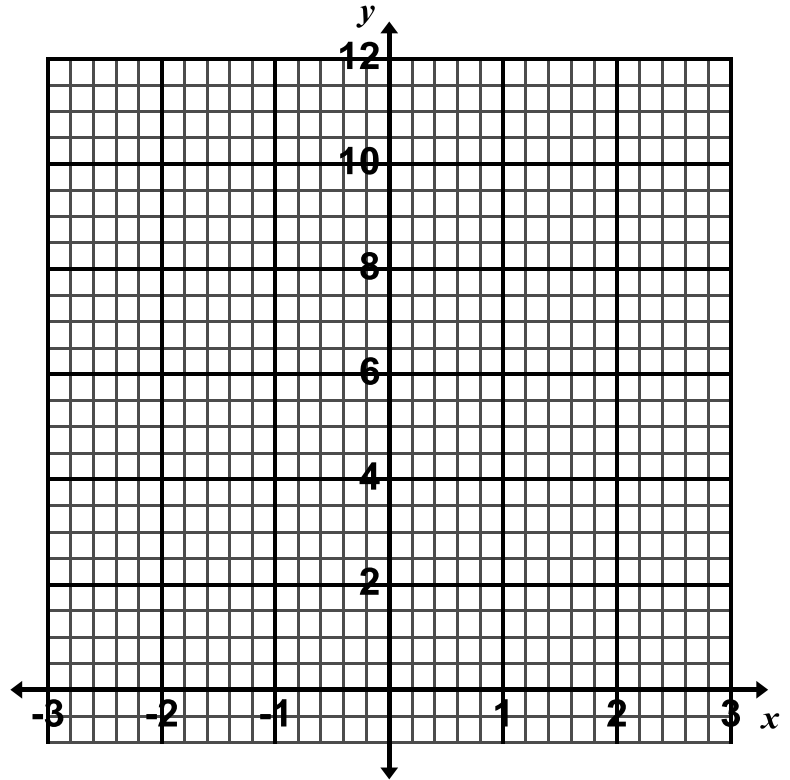
Step 2:

Each of the equations is in the form: $y = b^x$

For each part of the investigation graph the given equations on the same axes.

Sketch the graphs on the grid provided.

Complete the chart that follows.



Part 1:

$y = 2^x$ $y = 4^x$ $y = 10^x$

$y = 2^x$	$y = 4^x$	$y = 10^x$
y-intercept is	y-intercept is	y-intercept is
x-intercept is	x-intercept is	x-intercept is
function is increasing, decreasing or neither (circle one)	function is increasing, decreasing or neither (circle one)	function is increasing, decreasing or neither (circle one)
Domain is:	Domain is:	Domain is:
Range is:	Range is:	Range is:

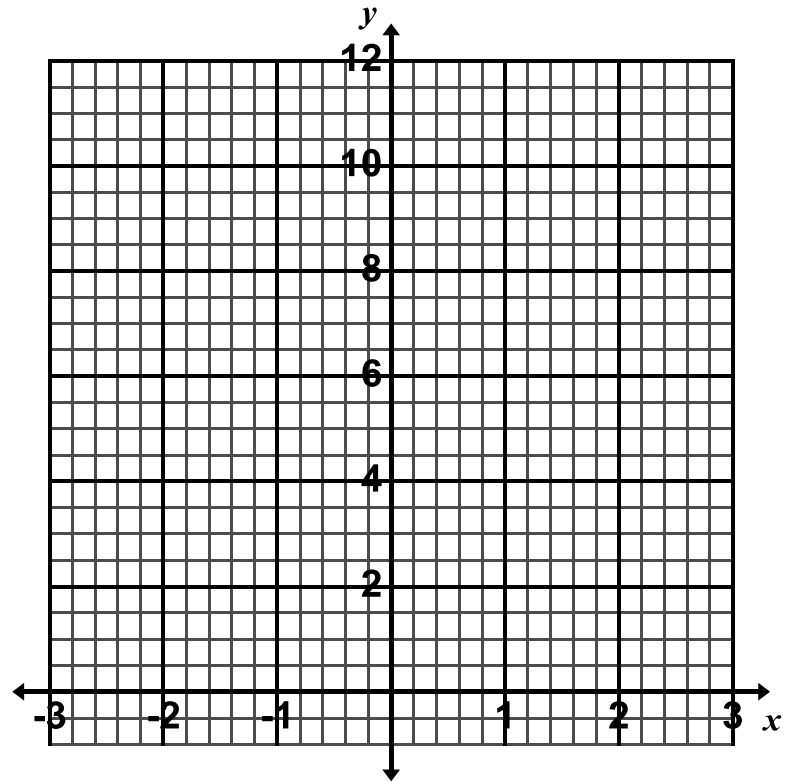
1. Describe what these graphs have in common.

2. Describe the impact of changing the base on the graph of an exponential function.

Part 2:

$$y = 2^x \quad y = \frac{1}{2}^x \quad y = \frac{1}{4}^x \quad y = \frac{1}{10}^x$$

(Consider putting brackets around the fractional bases)



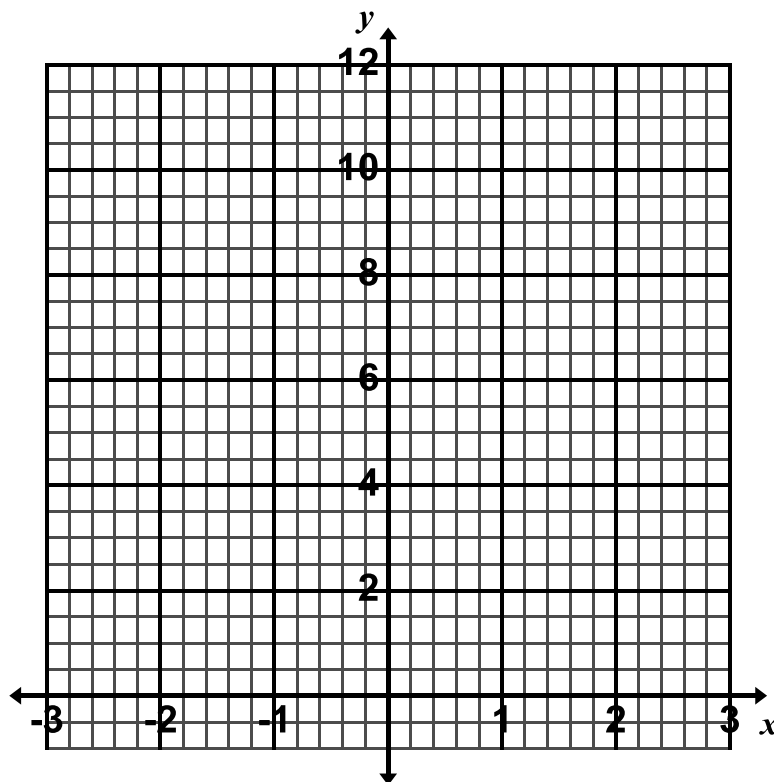
$y = \frac{1}{2}^x$	$y = \frac{1}{4}^x$	$y = \frac{1}{10}^x$
y-intercept is	y-intercept is	y-intercept is
x-intercept is	x-intercept is	x-intercept is
function is increasing, decreasing or neither (circle one)	function is increasing, decreasing or neither (circle one)	function is increasing, decreasing or neither (circle one)
Domain is:	Domain is:	Domain is:
Range is:	Range is:	Range is:

3. Describe what these graphs have in common.

4. Describe the impact of changing the base on the graph of an exponential function.

Part 3

$$y = 2^x \quad y = 2^{-x} \quad y = 4^{-x} \quad y = 10^{-x}$$



$y = 2^{-x}$	$y = 4^{-x}$	$y = 10^{-x}$
y-intercept is	y-intercept is	y-intercept is
x-intercept is	x-intercept is	x-intercept is
function is increasing, decreasing or neither (circle one)	function is increasing, decreasing or neither (circle one)	function is increasing, decreasing or neither (circle one)
Domain is:	Domain is:	Domain is:
Range is:	Range is:	Range is:

5. Describe what these graphs have in common with the graphs in part 2.

6. Describe the impact of changing the sign of the exponent on the graph of an exponential function.