

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

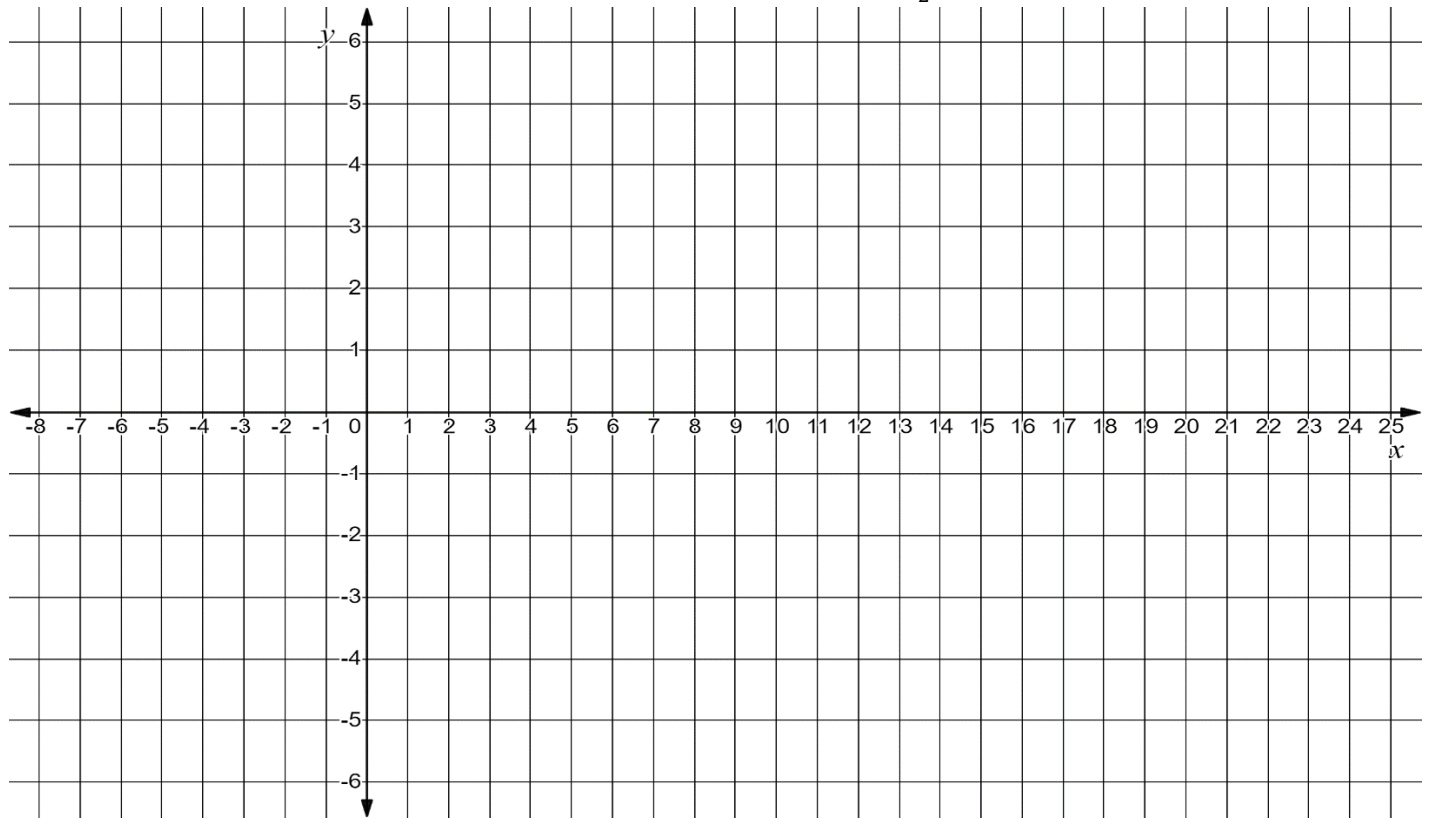
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<b>Learning Goal 7.1</b>	Applying one or more transformations to exponential and logarithmic functions, including translations, stretches and reflections.
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**Recall** the logarithmic function is the inverse of the exponential function. Use this idea to graph

a.  $y = \log_2 x$

b.  $y = \log_{1/2} x$



Compare	$y = \log_2 x$	$y = \log_{1/2} x$
Vertical intercept		
Horizontal intercept		
Domain & Range		
Asymptote		

**Properties** of the graph of the Logarithmic Function  $y = \log_b x$   $b > 0, b \neq 1, x > 0$

Vertical intercept

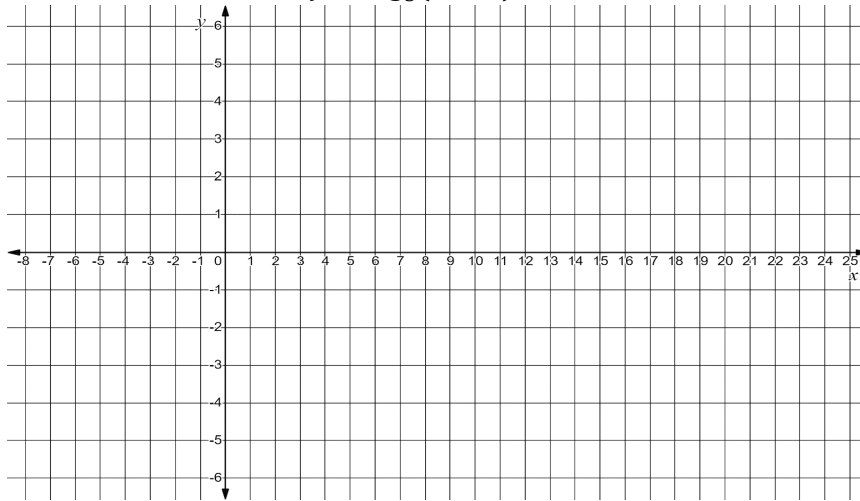
Horizontal intercept

Asymptote Equation

Domain and Range

**Example** Graph the function on the grids below, then complete the table.

$$y = \log_3(x + 5) + 2$$



Domain

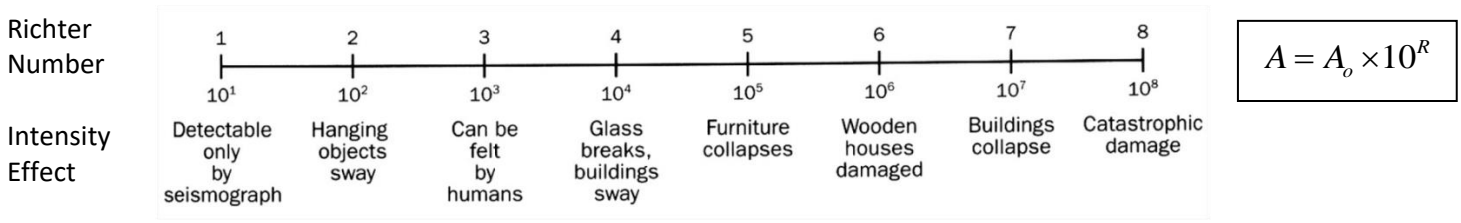
Range

$x$  – intercept

$y$  – intercept

Asymptote

**The Richter scale:** Each increase of 1 unit in magnitude on the Richter scale represents a 10 – fold increase in intensity as measured on a seismometer. The intensity,  $A$ , of an earthquake that has a Richter magnitude of  $R$  units greater than that of an earthquake with intensity  $A_0$  is given by the formula:



- How many times as intense as the 1989 San Francisco earthquake, which measured 6.9 on the Richter scale, was the 1964 Alaska earthquake, measuring 8.5?
- Calculate the magnitude of an earthquake that is twice as intense as the 1989 San Francisco earthquake.