Algebra 2

6-05 Graph Exponential and Logarithmic Functions (6.4)

Exponential Function

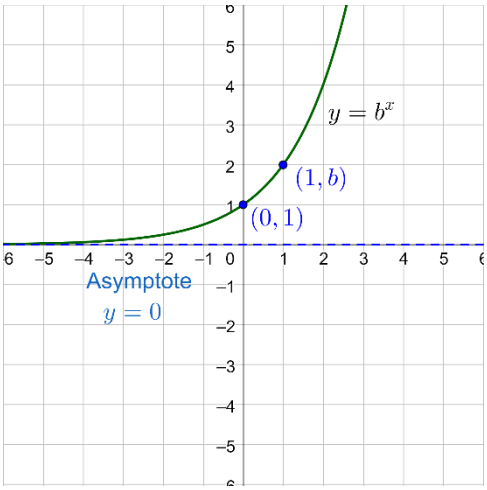
$$y = b^x$$

- _____ (b) is a positive number other than 1

In general

$$y = ab^{cx-h} + k$$

- a is _____ stretch
  - If a is –, _____ over x-axis
- c is _____ shrink by $\frac{1}{c}$
  - If c is –, _____ over y-axis
- h is _____ shift
- k is _____ shift
- Horizontal asymptote: _____

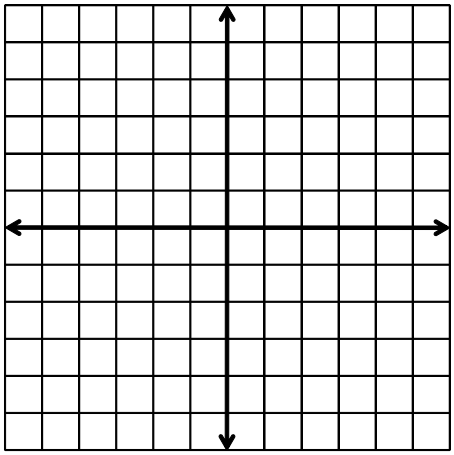


Graph Exponential Functions

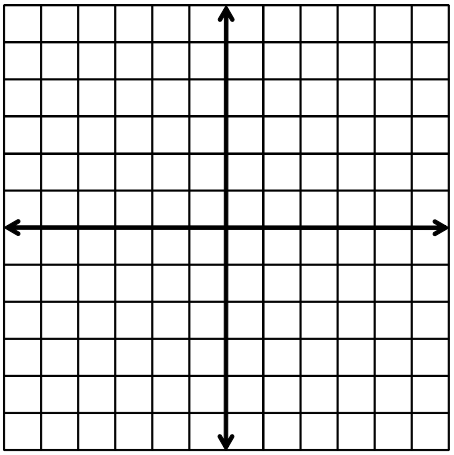
1. Find and graph the _____
2. Make a _____
3. _____ points and draw the curve
4. Make sure the curve is near the _____ at the _____ of the graph

(a) Describe the transformations. (b) Then graph the function.

$g(x) = -2^{x-3}$



$g(x) = e^{2x}$



Logarithmic Function

$$y = \log_b x$$

- _____ (b) is a positive number other than 1
- Logarithms and exponentials are _____

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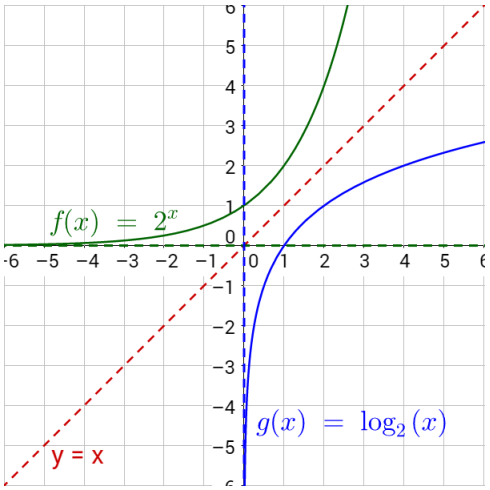
In general

$$y = a\log_b(cx - h) + k$$

- a is _____ stretch
  - If a is –, _____ over x-axis
- c is _____ shrink by $\frac{1}{c}$
  - If c is –, _____ over y-axis
- h is _____ shift
- k is _____ shift
- Vertical asymptote: _____

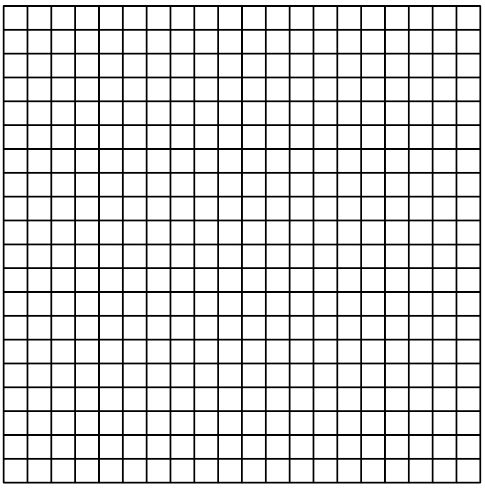


Graph Logarithmic Functions

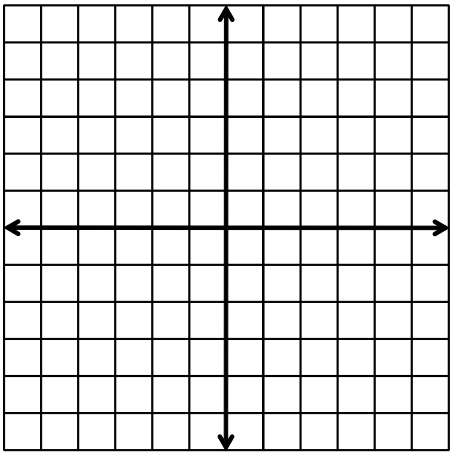
1. Find and graph the _____
2. Make a _____
   a. You may need to use the _____ formula
3. _____ points and draw the curve
4. Make sure the curve is near the _____ at the _____ of the graph

(a) Describe the transformations. (b) Then graph the function.

$g(x) = -\log_{1/5}(x - 7)$



$g(x) = 3\log_4 x - 5$



Find the inverse

1. _____ log or exponential part
2. _____ x and y
3. Then _____ as exponential or log

$y = \ln(x - 1)$

$y = 5^x - 9$

320#15, 17, 21; 313#57, 59; 320#25, 27; 313#43, 45, 47, 51; 322# 53, 55, 62, 65 = 15