

L3

Natural Base e Graphs

Warm-up

$$\text{Let } y = \left(1 + \frac{1}{x}\right)^x$$

Fill out the chart using a calculator

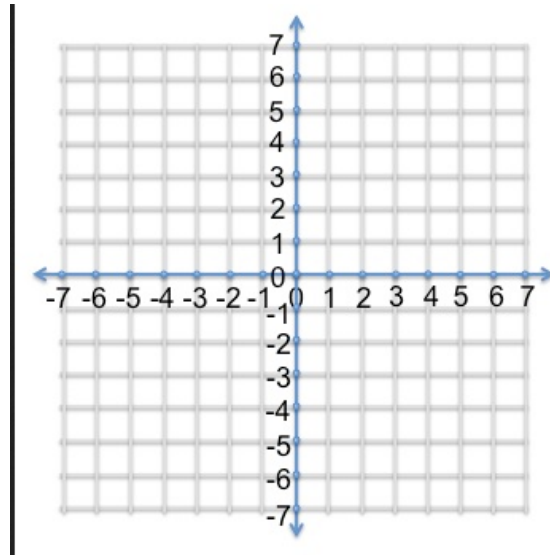
x	y
0	
1	
100	
1000	

Find e on your calculator. What is e^1 ?

$$e = \left(1 + \frac{1}{x}\right)^x, \text{ as } x \rightarrow \infty$$

Parent function

$$y = e^x$$



End Behavior: $x \rightarrow \infty, y \rightarrow \infty$

$x \rightarrow -\infty, y \rightarrow 0$

y int: (0,1)

D: x can be all real numbers.

R: $y > 0$

Asymptote: $y = 0$

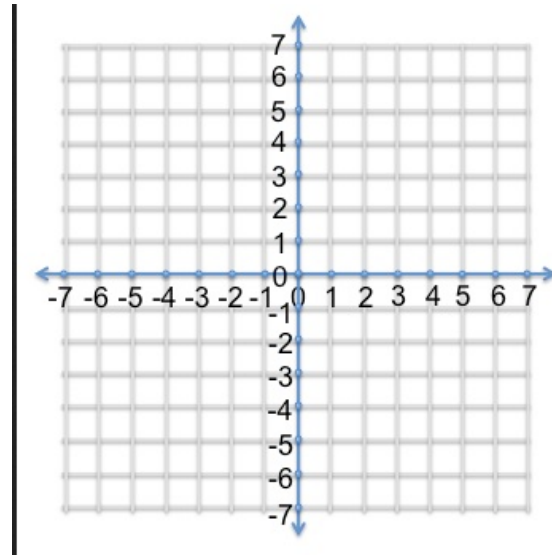
Standard form: $y = a(e)^{x-h} + k$

What does a do?

What does h do?

What does k do?

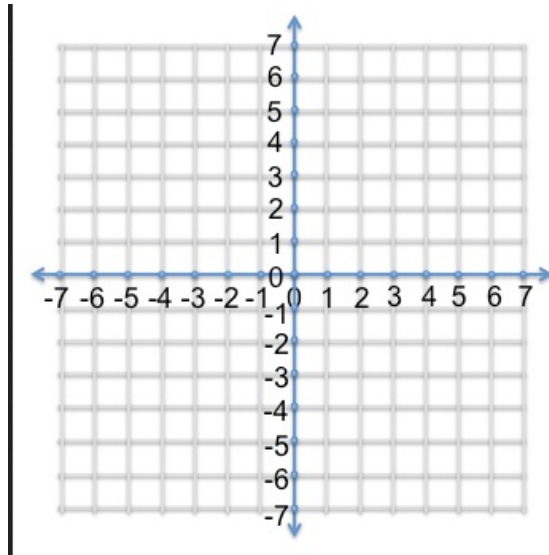
I do:
 $y = e^{x-2} + 1$



Asymptote: $y=1$
D: x can be all real numbers.
R: $y>1$
EB: $x \rightarrow \infty, y \rightarrow \infty$
 $x \rightarrow -\infty, y = 1$

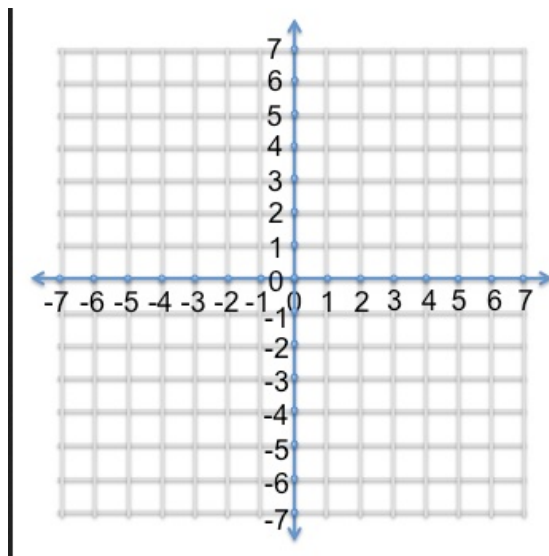
Apply stretches, then translations

I do:
 $y = 2e^x - 1$

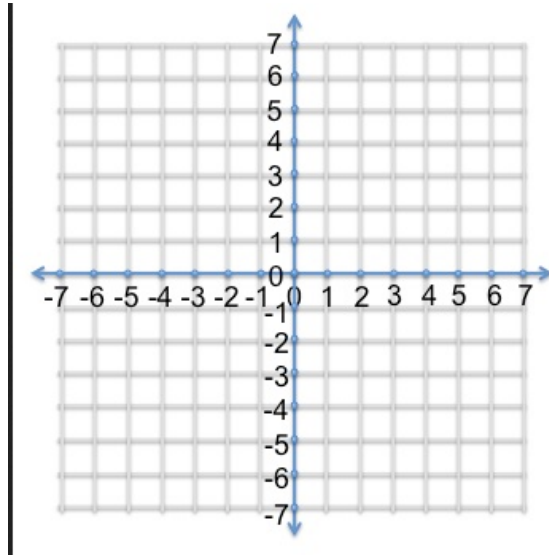


Apply stretches, then translations

We do:
 $y = -e^{x+3} - 1$



You do:
I do:
 $y = 2e^{x-1} + 2$



CW Pg 338 #5-10