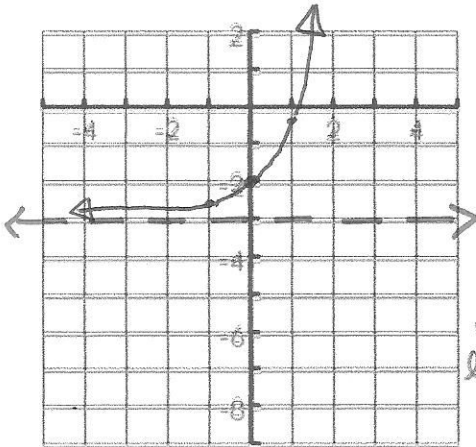


Name: Key

Date: \_\_\_\_\_

1.  $y = e^x - 3$



$0 = e^x - 3$   
 $+3$   
 $\ln 3 = \ln e^x$   
 $1.09 = x$   
 $1.1 = x$

Transformations: down 3 (1, -3)

State 3 points on Graph (0, -2) (2, 4.4) (-1, -2.6)

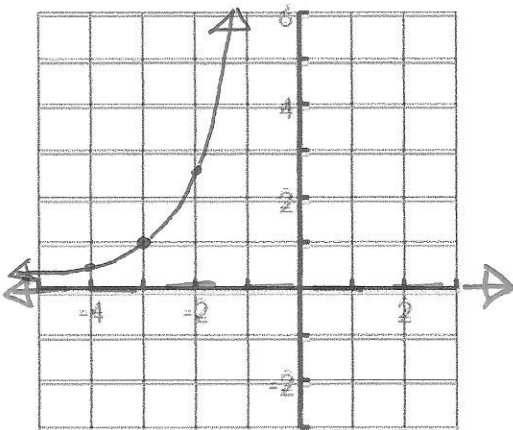
Domain  $(-\infty, \infty)$  Range  $(-3, \infty)$

Asymptote  $y = -3$  Increasing or Decreasing

X-intercept (1.1, 0) Y-intercept (0, -2)

End Behavior  
 $x \rightarrow -\infty, f(x) \rightarrow -3$   
 $x \rightarrow +\infty, f(x) \rightarrow +\infty$

2.  $y = e^{x+3}$



Transformations: left 3

State 3 points on Graph (-4, .4) (-3, 1) (-2, 2.7)

Domain  $(-\infty, \infty)$  Range  $(0, \infty)$

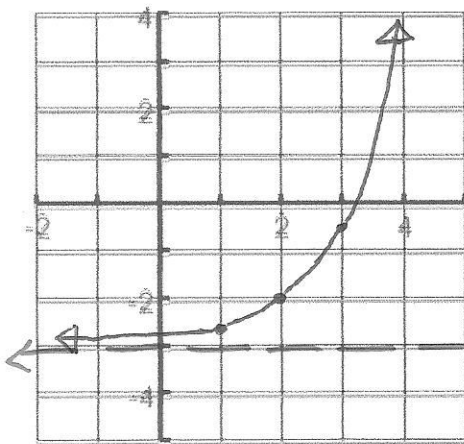
Asymptote  $y = 0$  Increasing or Decreasing

X-intercept None Y-intercept (0, 20.1)

End Behavior  
 $x \rightarrow -\infty, f(x) \rightarrow 0$   
 $x \rightarrow +\infty, f(x) \rightarrow +\infty$

$y = e^{0+3}$   
 $y = 20.1$   
 or  
 look in  
 table

3.  $y = e^{x-2} - 3$



$0 = e^{x-2} - 3$   
 $+3$   
 $\ln 3 = \ln e^{x-2}$   
 $1.1 = x - 2$   
 $3.1 = x$

Transformations: right 2, down 3

State 3 points on Graph (1, -2.6) (2, -2) (3, -1.3)

Domain  $(-\infty, \infty)$  Range  $(-3, \infty)$

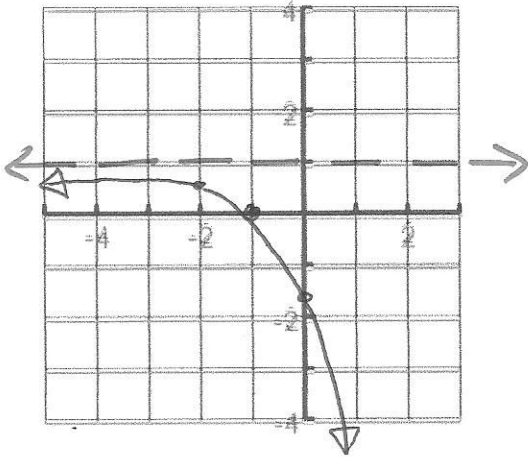
Asymptote  $y = -3$  Increasing or Decreasing

X-intercept (3.1, 0) Y-intercept (0, -2.9)

End Behavior  
 $x \rightarrow -\infty, f(x) \rightarrow -3$   
 $x \rightarrow +\infty, f(x) \rightarrow +\infty$

$y = e^{0-2} - 3$   
 $y = -2.9$   
 or  
 look in  
 table

4.  $y = -e^{x+1} + 1$



Transformations: reflect over x, left 1, up 1

State 3 points on Graph  $(-2, 0)$   $(-1, 0)$   $(0, -1.7)$

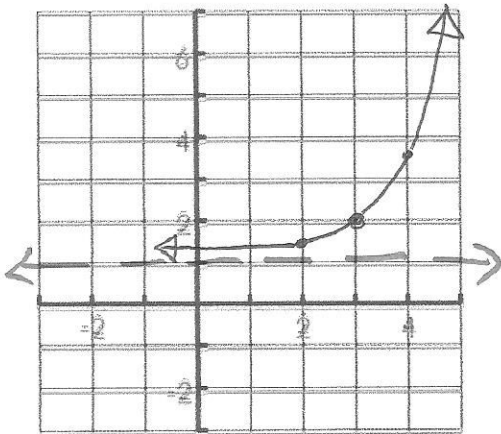
Domain  $(-\infty, \infty)$  Range  $(-\infty, 1)$

Asymptote  $y = 1$  Increasing or Decreasing

X-intercept  $(-1, 0)$  Y-intercept  $(0, -1.7)$

End Behavior  $x \rightarrow -\infty, f(x) \rightarrow 1$   
 $x \rightarrow +\infty, f(x) \rightarrow -\infty$

5.  $y = e^{x-3} + 1$



Transformations: right 3, up 1

State 3 points on Graph  $(2, 1.4)$   $(3, 2)$   $(4, 3.7)$

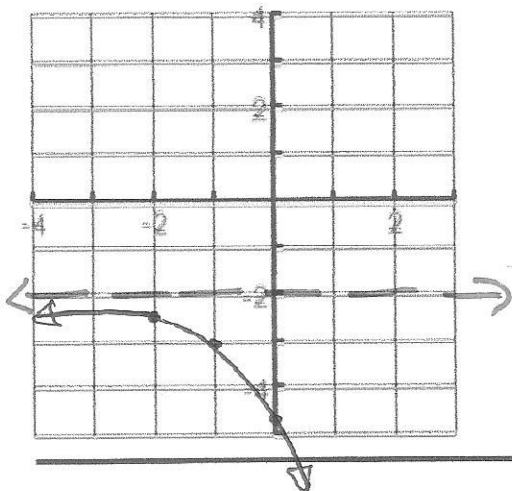
Domain  $(-\infty, \infty)$  Range  $(1, \infty)$

Asymptote  $y = 1$  Increasing or Decreasing

X-intercept None Y-intercept  $(0, 1.05)$

End Behavior  $x \rightarrow -\infty, f(x) \rightarrow 1$   
 $x \rightarrow +\infty, f(x) \rightarrow +\infty$

6.  $y = -e^{x+1} - 2$



Transformations: reflect over x, left 1, down 2

State 3 points on Graph  $(-2, -2.4)$   $(-1, -3)$   $(0, -4.7)$

Domain  $(-\infty, \infty)$  Range  $(-\infty, -2)$

Asymptote  $y = -2$  Increasing or Decreasing

X-intercept None Y-intercept  $(0, -4.7)$

End Behavior  $x \rightarrow -\infty, f(x) \rightarrow -2$   
 $x \rightarrow +\infty, f(x) \rightarrow -\infty$