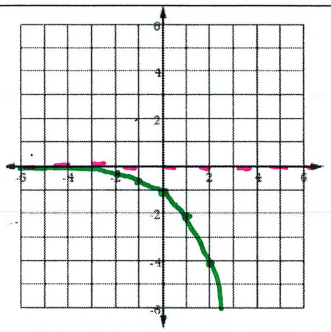
Name Key Date

1. $y = -2^x$



Transformations Reflect over the x-axis

State 3 points on Graph (2,-4) (1,-2) (0,-1)

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

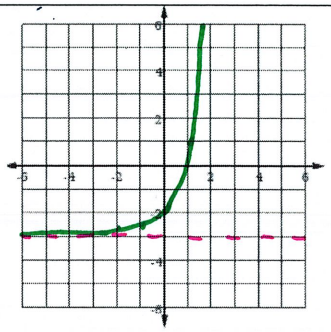
Asymptote $y = 0$

Intercept(s) (0,-1)

Increasing $\emptyset$ Decreasing $\mathbb{R}$

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

2. $y = 4^x - 3$



Transformations Down 3

State 3 points on Graph (1, 1) (0, -2) $(-1, -1\frac{3}{4})$

Domain $\mathbb{R}$ Range $(-3, \infty)$

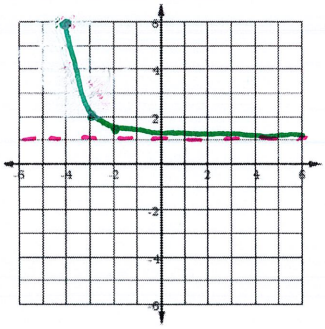
Asymptote $y = -3$

Intercept(s) (0,-2)

Increasing $(-\infty, \infty)$ Decreasing $\emptyset$

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

3. $y = \left(\frac{1}{5}\right)^{x+3} + 1$



Transformations Left 3 up 1

State 3 points on Graph (-4,6) (-3,2) $(-2, 1\frac{1}{5})$

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

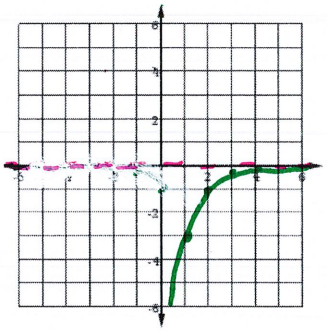
Asymptote $y = 1$

Intercept(s) $(0, 1\frac{1}{125})$

Increasing $\emptyset$ Decreasing $\mathbb{R}$

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

4. $f(x) = -\left(\frac{1}{3}\right)^{x-2}$



Transformations Reflect across the x-axis, Right 2

State 3 points on Graph (1,-3) (2,-1) $(3, -\frac{1}{3})$

Domain $\mathbb{R}$ Range $(-\infty, 0)$

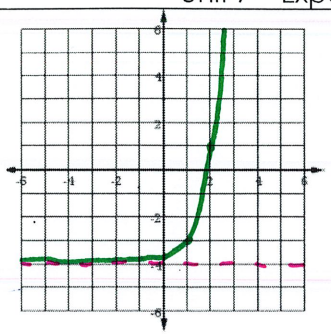
Asymptote $y = 0$

Intercept(s) (0,-9)

Increasing $(-\infty, \infty)$ Decreasing $\emptyset$

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

5. $f(x) = 5^{x-1} - 4$



Transformations Right 1 Down 4

State 3 points on Graph (2, 1) (1, -3) (0, -3 4/5)

Domain $\mathbb{R}$ Range $(-4, \infty)$

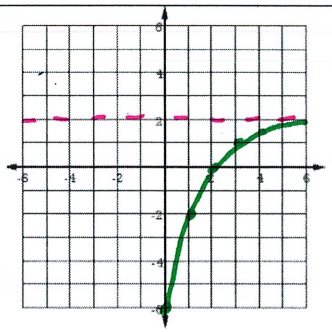
Asymptote $y = -4$

Intercept(s) (0, -3 4/5)

Increasing $(-\infty, \infty)$ Decreasing $\varnothing$

End Behavior $x \to -\infty$, $f(x) \to -4$
$x \to \infty$, $f(x) \to \infty$

6. $y = -\left(\frac{1}{2}\right)^{x-3} + 2$



Transformations Reflect over the x-axis, Right 3 Up 2

State 3 points on Graph (0, -6) (1, -2) (2, 0)

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

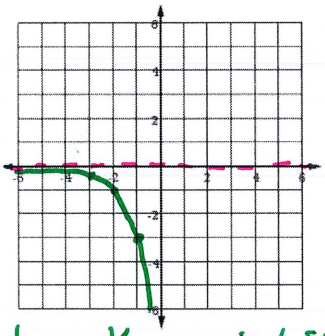
Asymptote $y = 2$

Intercept(s) (0, -6)

Increasing $\mathbb{R}$ Decreasing $\varnothing$

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

7. $y = -3^{x+2}$



Transformations Reflect over the x-axis, Left 2

State 3 points on Graph (-1, -3) (-2, -1) (-3, -1/3)

Domain $\mathbb{R}$ Range $(-\infty, 0)$

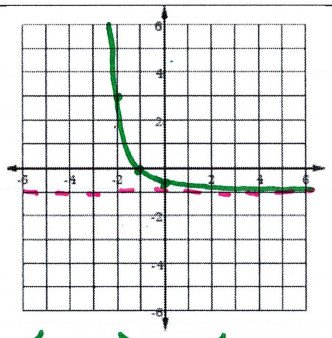
Asymptote $y = 0$

Intercept(s) (0, -9)

Increasing $\varnothing$ Decreasing $(-\infty, \infty)$

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

8. $f(x) = \left(\frac{1}{4}\right)^{x+1} - 1$



Transformations Left 1 Down 1

State 3 points on Graph (-2, 3) (-1, 0) (0, -3/4)

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

Asymptote $y = -1$

Intercept(s) (0, -3/4)

Increasing $\varnothing$ Decreasing $\mathbb{R}$

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