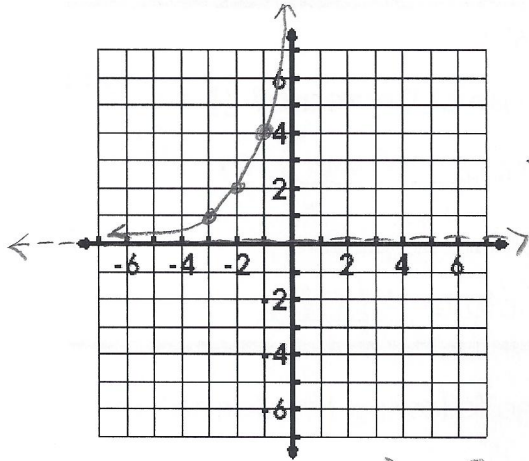


Name: Answer Key Date: _____

Graphing Exponential Functions

1. $f(x) = 2^{x+3}$ *Left 3*



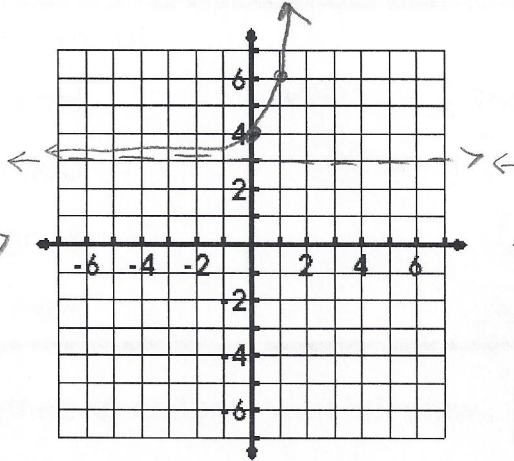
Domain: $(-\infty, \infty)$ or \mathbb{R}

Range: $(0, \infty)$ $y > 0$

Asymptote: $y = 0$

Increasing/Decreasing

2. $f(x) = 2^x + 3$ *Up 3*



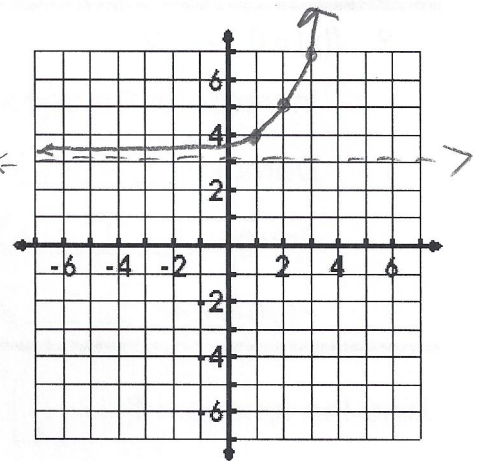
Domain: $(-\infty, \infty)$ or \mathbb{R}

Range: $(3, \infty)$ $y > 3$

Asymptote: $y = 3$

Increasing/Decreasing

3. $f(x) = 2^{x-1} + 3$ *Right 1, Up 3*



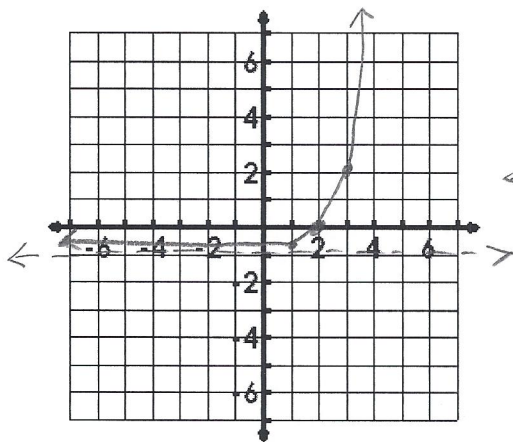
Domain: $(-\infty, \infty)$ \mathbb{R}

Range: $(3, \infty)$ $y > 3$

Asymptote: $y = 3$

Increasing/Decreasing

4. $f(x) = 3^{x-2} - 1$ *Right 2, Down 1*



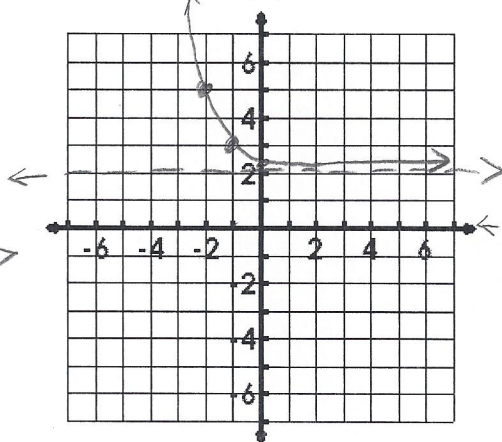
Domain: $(-\infty, \infty)$ or \mathbb{R}

Range: $(-1, \infty)$ $y > -1$

Asymptote: $y = -1$

Increasing/Decreasing

5. $f(x) = \left(\frac{1}{3}\right)^{x+1} + 2$ *Left 1, Up 2*



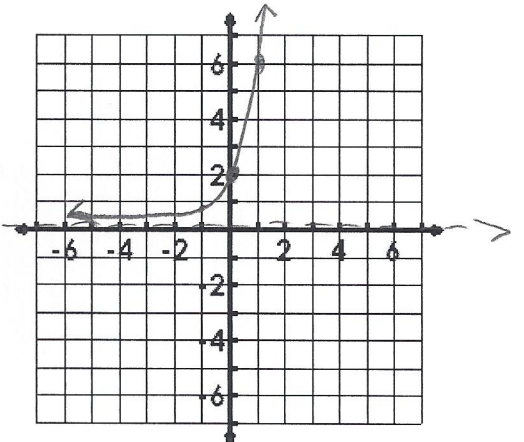
Domain: $(-\infty, \infty)$ or \mathbb{R}

Range: $(2, \infty)$ $y > 2$

Asymptote: $y = 2$

Increasing/Decreasing

6. $f(x) = 2(3)^x$ *Stretch by a factor of 2*



Domain: $(-\infty, \infty)$ or \mathbb{R}

Range: $(0, \infty)$ $y > 0$

Asymptote: $y = 0$

Increasing/Decreasing

7. As x increases, does $f(x) = (4.2)^x - 0.8$ increase or decrease? Increase

8. As x increases, does $f(x) = \left(\frac{5}{2}\right)^{x+1}$ increase or decrease? Increase

9. $f(x) = 0.72^x - 2$

Increase or Decrease? Decrease

Domain: $(-\infty, \infty)$ or \mathbb{R}

Range: $(-2, \infty)$ $y > -2$

Asymptote: $y = -2$

10. $f(x) = 6^{x-2} + 0$

Increase or Decrease? Increase

Domain: $(-\infty, \infty)$ or \mathbb{R}

Range: $(0, \infty)$ $y > 0$

Asymptote: $y = 0$

Using the function: $f(x) = \left(\frac{1}{4}\right)^x$, write the new function given the following transformations:

11. Right 3, Down 2

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

12. Reflect over x-axis

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

13. Up 2, Left 4

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

$$y = a(b)^{x-h} + k$$