

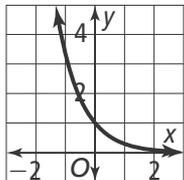


# 6-1 Additional Practice

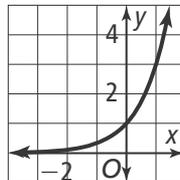
## Key Features of Exponential Functions

Graph each function. What are the key features of each graph (include domain, range, intercepts, asymptotes, and end behavior)?

1.  $y = (0.3)^x$

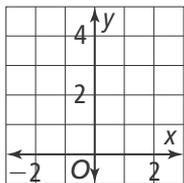


2.  $y = 3^x$

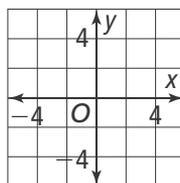


Graph each function. Describe the graph in terms of transformations of the parent function  $f(x) = 2^x$ . How do the asymptote and y-intercept of the given function compare to the asymptote and intercept of the parent function?

3.  $g(x) = (0.5)^x$



4.  $g(x) = -2^x$



Without graphing, determine whether the function represents exponential growth or exponential decay. What is the y-intercept?

5.  $y = 0.99\left(\frac{1}{3}\right)^x$

6.  $y = 20(1.75)^x$

Write an exponential function to model each situation. Find each amount after the specified time.

7. A population of 1,236,000 grows 1.3% per year for 10 years.

8. A population of 752,000 decreases 1.4% per year for 18 years.

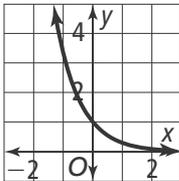


# 6-1 Additional Practice

## Key Features of Exponential Functions

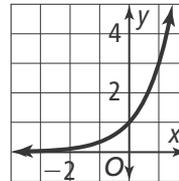
Graph each function. What are the key features of each graph (include domain, range, intercepts, asymptotes, and end behavior)?

1.  $y = (0.3)^x$



**Domain: all real numbers**  
**Range:  $y > 0$**   
**Asymptotes: x-axis**  
**End behavior:**  
**As  $x \rightarrow \infty$ ,  $y \rightarrow 0$ .**  
**As  $x \rightarrow -\infty$ ,  $y \rightarrow \infty$**

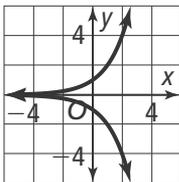
2.  $y = 3^x$



**Domain: all real numbers**  
**Range:  $y > 0$**   
**Intercepts: (0, 1)**  
**End behavior:**  
**As  $x \rightarrow \infty$ ,  $y \rightarrow \infty$ .**  
**As  $x \rightarrow -\infty$ ,  $y \rightarrow 0$**

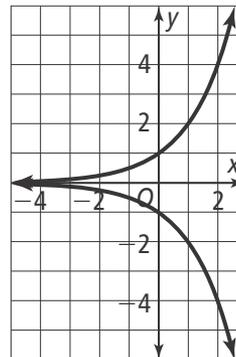
Graph each function. Describe the graph in terms of transformations of the parent function  $f(x) = 2^x$ . How do the asymptote and intercept of the given function compare to the asymptote and intercept of the parent function?

3.  $g(x) = (0.5)^x$



**When the sign of  $x$  changes, the function is reflected across the y-axis. The y-intercept does not change. The asymptote is still the x-axis.**

4.  $g(x) = -2^x$



**When the sign of  $a$  changes, the function is reflected across the x-axis. The intercept changes from  $a$  to  $-a$ , which is 1 to  $-1$ . The asymptote does not change. It is still the x-axis.**

Without graphing, determine whether the function represents exponential growth or exponential decay. What is the y-intercept?

5.  $y = 0.99\left(\frac{1}{3}\right)^x$  **decay; 0.99**

6.  $y = 20(1.75)^x$  **growth; 20**

Write an exponential function to model each situation. Find each amount after the specified time.

7. A population of 1,236,000 grows 1.3% per year for 10 years.  
 **$y = 1,236,000(1.013)^x$ ; 1,406,413**

8. A population of 752,000 decreases 1.4% per year for 18 years.  
 **$y = 752,000(0.986)^x$ ; 583,448**