Name: **Date:**

Practice: Comparing Exponential Functions B

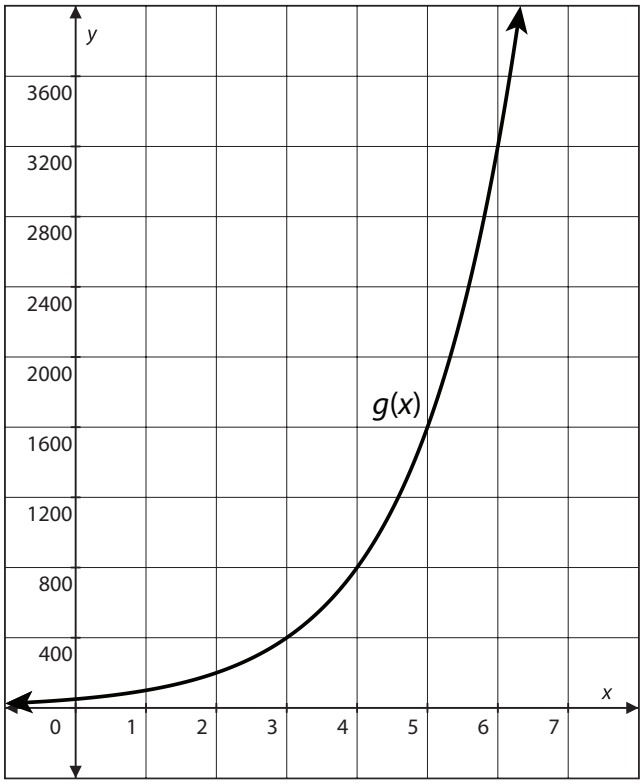
Compare the properties of the exponential functions.

1. Which function has a greater rate of change over the interval $3 \le x \le 6$? Which function has the greater y-intercept? Explain how you know.

Function A

x	$f(x)$
0	25
3	1600
4	6400
6	102,400

Function B



2. Which function has a greater rate of change over the interval $0 \le x \le 4$? Which function has the greater y-intercept?

Function A

$f(x) = 3^x$

Function B

$$g(x) = \left(\frac{1}{3}\right)^x$$

continued

3. Compare the properties of each function over the interval $4 \le x \le 10$.

Function A

$$f(x) = 250\left(1 + \frac{0.05}{12}\right)^{12x}$$

Function B

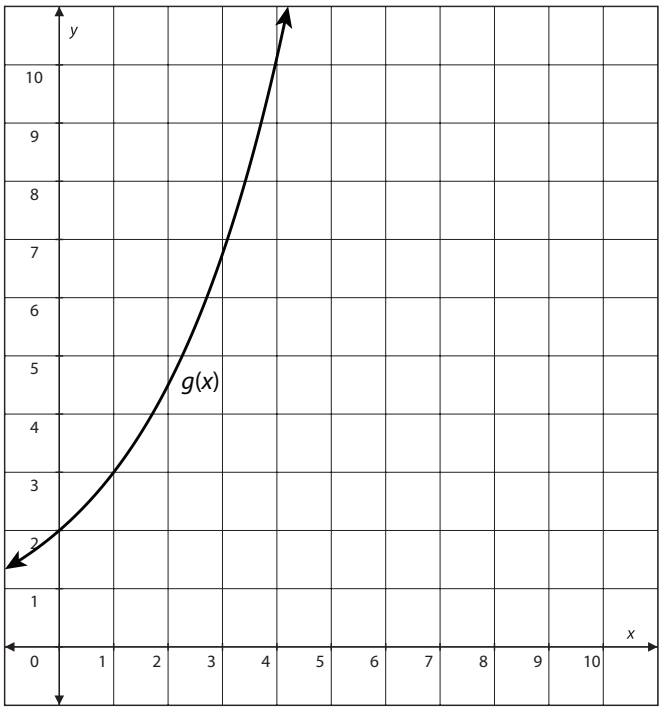
x	$g(x)$
0	300
2	324.94
4	351.96
6	381.22
8	412.92
10	447.25
12	484.44

4. Compare the properties of each function over the interval $1 \le x \le 4$.

Function A

$$f(x) = 4\left(\frac{5}{2}\right)^{x}$$

Function B



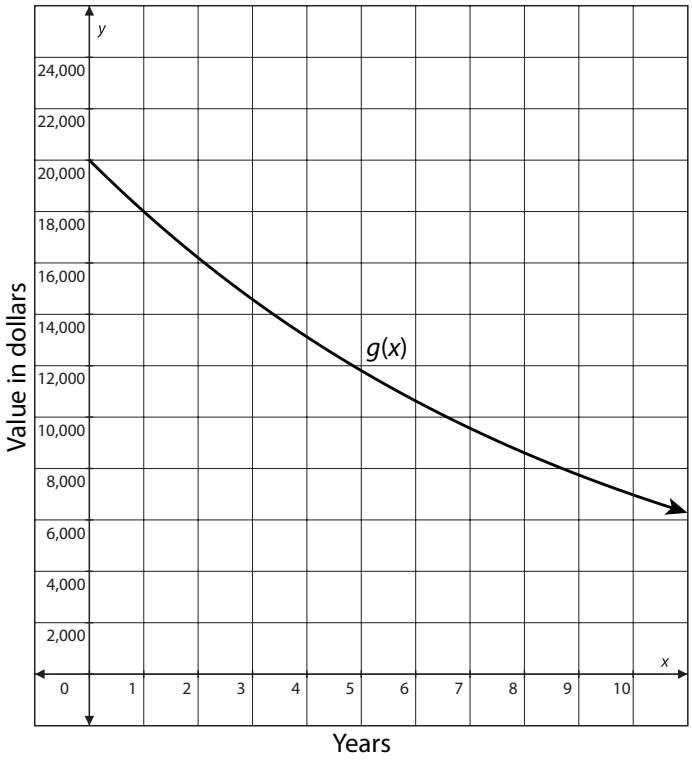
continued

5. Compare the properties of each exponential function over the interval $0 \le x \le 5$.

Function A

Geoff and Hazel bought a new car for $25,000. The car loses approximately 15% of its value each year.

Function B



6. Compare the properties of each exponential function over the interval $0 \le x \le 5$.

Function A

Mr. Annear received a job offer with a starting salary of $40,000 and a 2.5% increase each year.

Function B

Mr. Annear received a second job offer that can be described by the function $g(x) = 42{,}500(1 + 0.02)^x$.

continued

7. Compare the properties of each exponential function over the interval $0 \le x \le 20$.

Function A

The enrollment of Oceanside High School, $f(x)$, after x years is modeled by the function $f(x) = 930(1 + 0.013)^x$.

Function B

The enrollment of Oceanside's rival is shown in the following table.

x	$g(x)$
0	875
4	985
8	1109
12	1249
16	1406
20	1583

8. Compare the properties of each exponential function over the interval $0 \le x \le 15$.

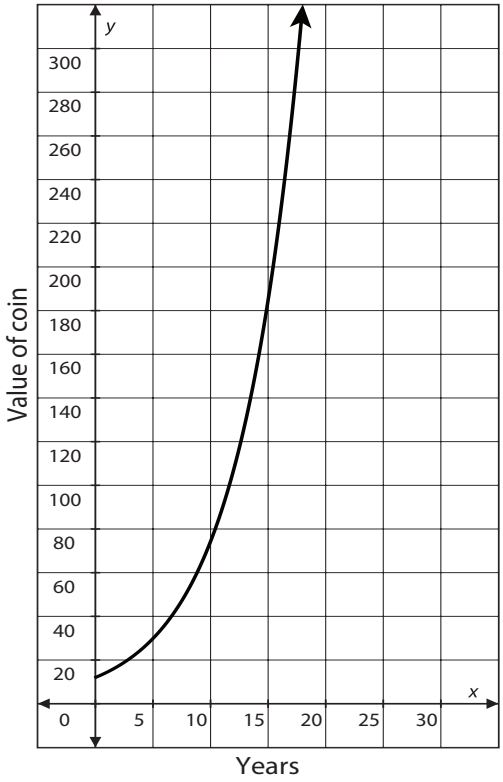
Function A

The table shows the value in dollars of a rare coin, $f(x)$, x years from the date purchased.

x	$f(x)$
0	17.50
5	40.00
10	175.00
15	200.00

Function B

The graph models the value in dollars of another rare coin, $g(x)$, x years from the date purchased.



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9. Compare the properties of each exponential function over the interval $0 \le x \le 4$.

Function A

The value in dollars of a car $f(x)$ depreciates after each year x. The following table shows the value of a car for each of the first 4 years after it was purchased.

x	$f(x)$
0	32,000
1	25,600
2	20,480
3	16,384
4	13,107

Function B

The value in dollars of a second car is modeled by the equation $g(x) = 27{,}500(1 - 0.15)^x$, where $g(x)$ represents the value of the car x years from the date purchased.

10. Compare the properties of each exponential function over the interval $0 \le x \le 10$.

Function A

Your parents have $2,500 to invest for your college education fund. They find an account where the investment can earn 3.655%, compounded monthly.

Function B

The value of a second investment is modeled in the following graph.