

## Practice: Comparing Exponential Functions

A

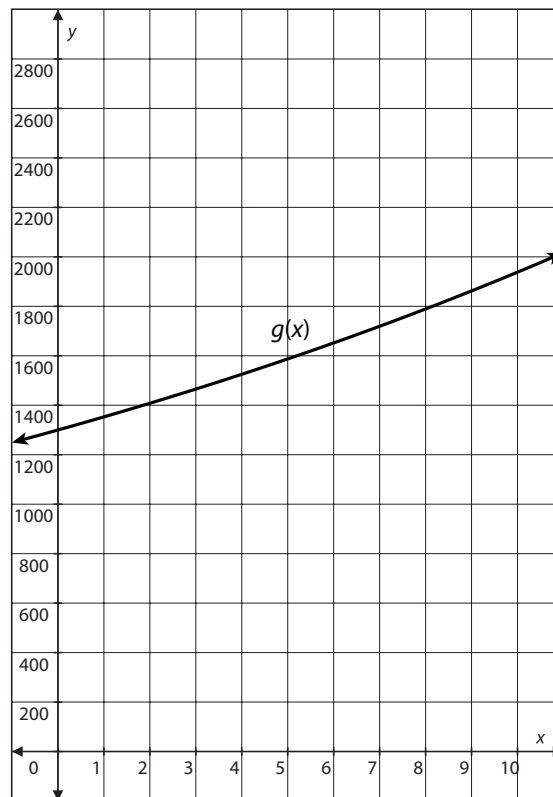
Compare the properties of the exponential functions.

1. Which function has a greater rate of change over the interval  $2 \leq x \leq 8$ ? Which function has the greater  $y$ -intercept? Explain how you know.

**Function A**

$x$	$f(x)$
0	1400
2	1546.92
4	1709.25
6	1888.62
8	2086.82

**Function B**



2. Which function has a greater rate of change over the interval  $0 \leq x \leq 5$ ? Which function has the greater  $y$ -intercept?

**Function A**

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

**Function B**

$$g(x) = 2^x$$

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3. Compare the properties of each function over the interval  $2 \leq x \leq 8$ .

**Function A**

$$f(x) = 400 \left( 1 + \frac{0.06}{12} \right)^{12x}$$

**Function B**

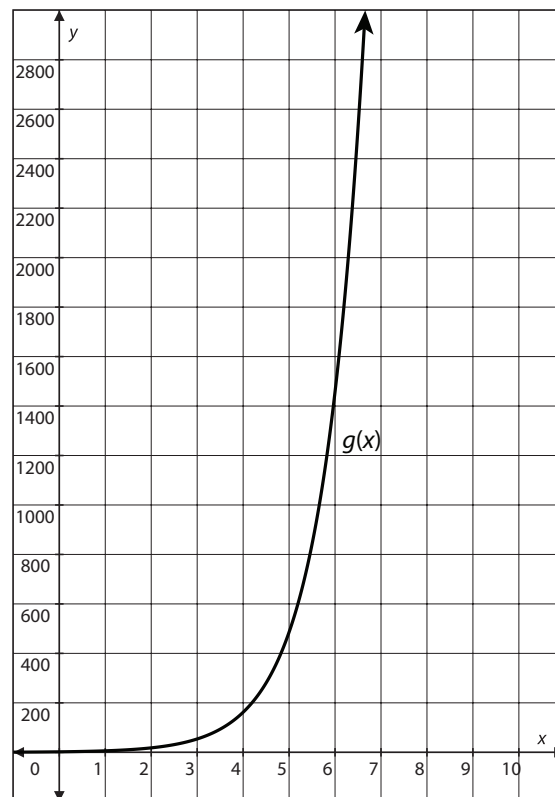
$x$	$g(x)$
0	350.00
2	398.45
4	453.61
6	516.40
8	587.88

4. Compare the properties of each function over the interval  $0 \leq x \leq 5$ .

**Function A**

$$f(x) = 3(2)^x$$

**Function B**



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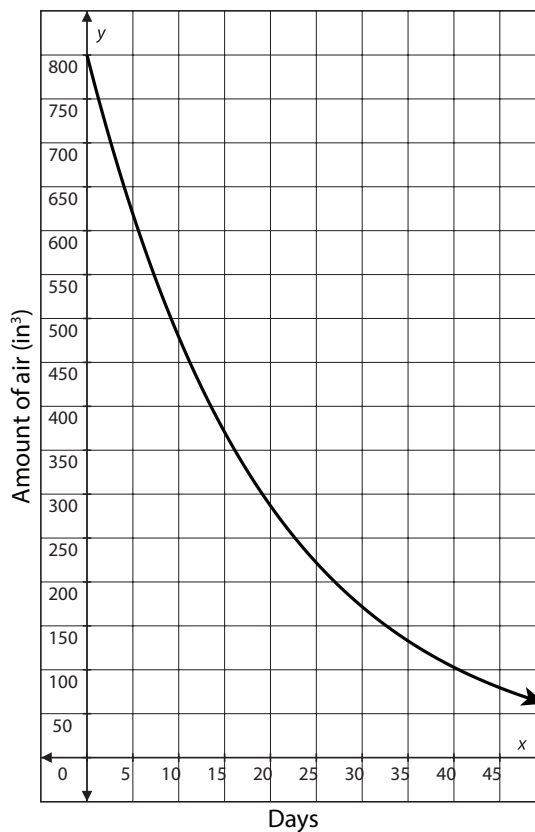
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5. Compare the properties of each exponential function over the interval  $0 \leq x \leq 10$ .

**Function A**

A fully inflated beach ball is losing 7.5% of its air every day. The beach ball originally contained 800 cubic inches of air.

**Function B**



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

**Function A**

Jasmine received a job offer with a starting salary of \$32,000 and a 1.5% increase every year.

**Function B**

A second job offer for Jasmine can be described by the function  $f(x) = 30,000(1 + 0.02)^x$ .

*continued*

7. Compare the properties of each exponential function over the interval  $0 \leq x \leq 4$ .

**Function A**

The enrollment of Eastern High School,  $f(x)$ , after  $x$  years is modeled by the function  $f(x) = 1700(1 + 0.025)^x$ .

**Function B**

The following table shows the enrollment of a rival high school,  $g(x)$ , for 5 years.

$x$	$g(x)$
0	1900
1	1872
2	1843
3	1816
4	1789

8. Compare the properties of each exponential function over the interval  $1 \leq x \leq 3$ .

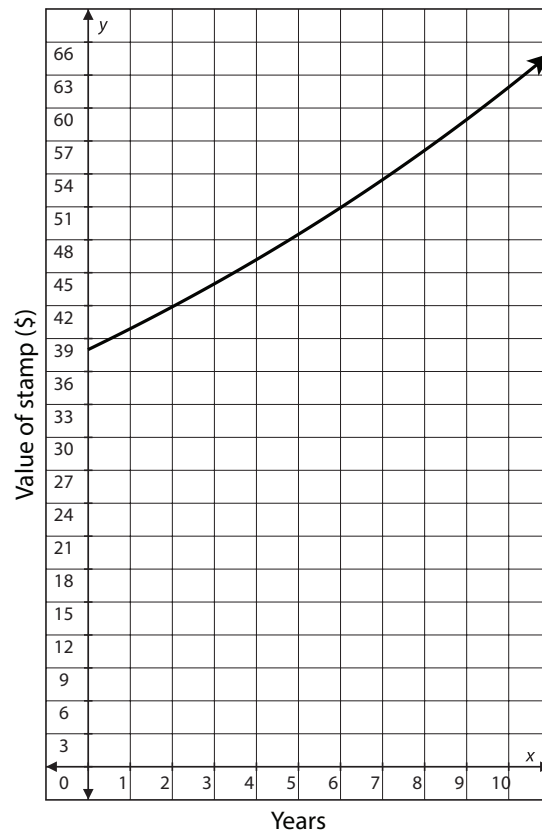
**Function A**

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

$x$	$f(x)$
0	52
1	54.08
2	56.24
3	58.49
4	60.83

**Function B**

The following graph models the value in dollars of a second rare stamp,  $g(x)$ , after  $x$  years.



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

**Function A**

The value of a car in dollars,  $f(x)$ , 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	22,450
1	19,307
2	16,604.02
3	14,279.46
4	12,280.33

**Function B**

The value of a second car is modeled by the equation  $g(x) = 19,375(1 - 0.16)^x$ , where  $g(x)$  represents the value of the car  $x$  years after the date it was purchased.

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

**Function A**

An investment of \$1,000 earns interest at a rate of 3.75%, compounded monthly.

**Function B**

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

