

NAME: \_\_\_\_\_

## UNIT 3 • LINEAR AND EXPONENTIAL FUNCTIONS

### Lesson 5: Comparing Functions

#### Practice 3.5.2: Comparing Exponential Functions

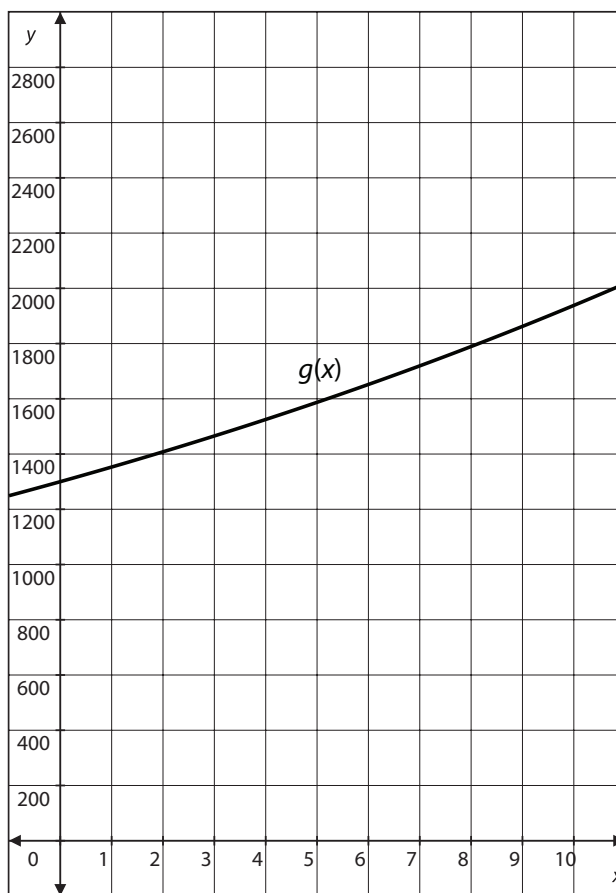
Compare the properties of the exponential functions.

- Which function has a greater rate of change over the interval  $[2, 8]$ ? 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**



- Which function has a greater rate of change over the interval  $[0, 5]$ ? Which function has the greater  $y$ -intercept?

**Function A**

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

**Function B**

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

*continued*

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3. Compare the properties of each function over the interval [2, 8].

**Function A**

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

**Function B**

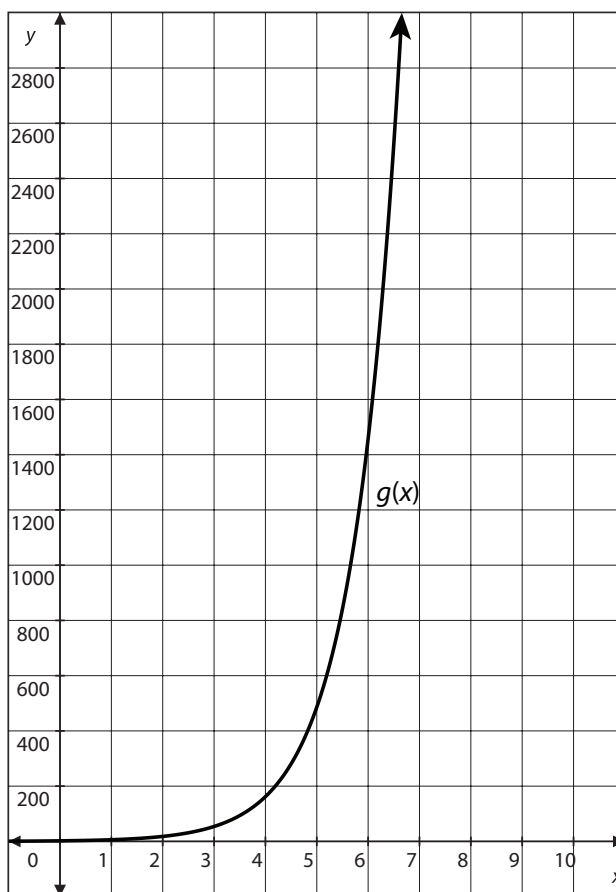
$x$	$g(x)$
0	350.00
2	398.45
4	453.61
6	516.40
8	587.88

4. Compare the properties of each function over the interval [0, 5].

**Function A**

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

**Function B**



*continued*

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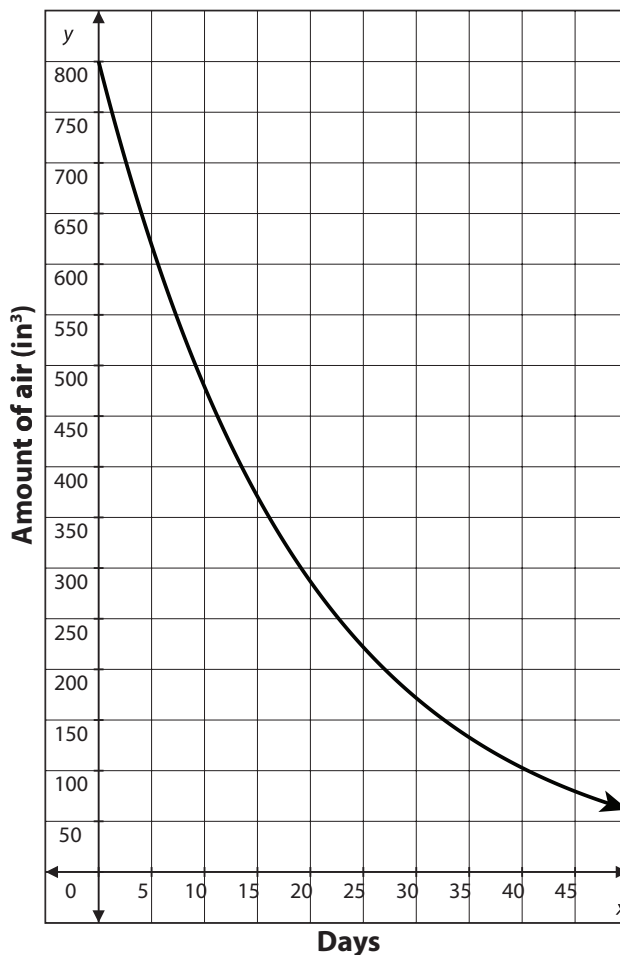
### Lesson 5: Comparing Functions

5. Compare the properties of each exponential function over the interval  $[0, 10]$ .

#### 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  $[0, 5]$ .

#### 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*