

NAME: _____

UNIT 3 • LINEAR AND EXPONENTIAL FUNCTIONS

Lesson 5: Comparing Functions

Practice 3.5.1: Comparing Linear Functions

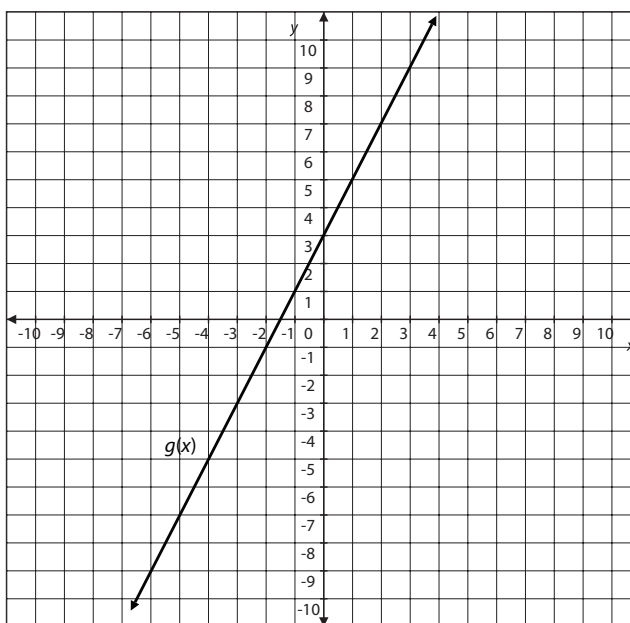
Compare the properties of the linear functions.

- Which function has a greater rate of change? Which function has the greater y -intercept? Explain how you know.

Function A

| x | $f(x)$ |
|-----|--------|
| -4 | 12 |
| -1 | 0 |
| 2 | -12 |
| 3 | -16 |

Function B

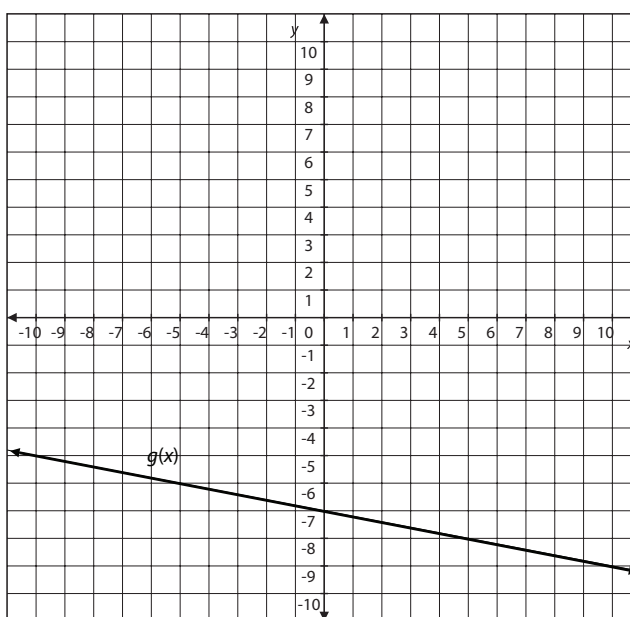


- Which function has a greater rate of change? Which function has the greater y -intercept?

Function A

| x | $f(x)$ |
|-----|--------|
| -8 | 1 |
| 0 | 2 |
| 4 | 2.5 |
| 8 | 3 |

Function B



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NAME: _____

UNIT 3 • LINEAR AND EXPONENTIAL FUNCTIONS

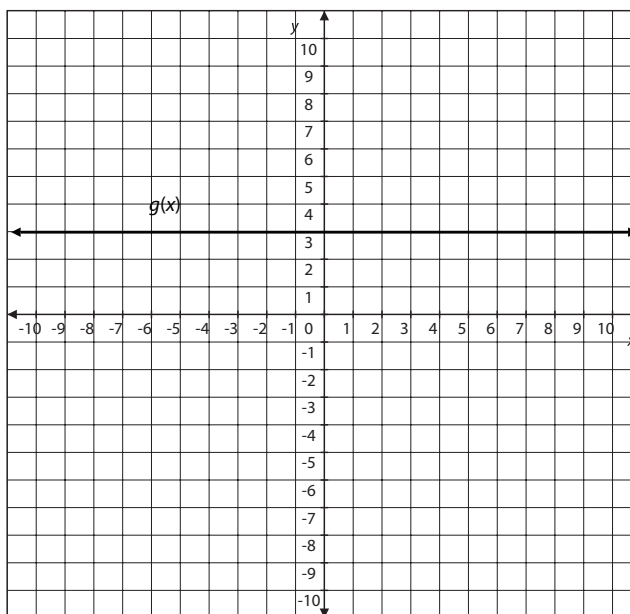
Lesson 5: Comparing Functions

3. Compare the properties of each function.

Function A

$$f(x) = \frac{1}{4}x + 3$$

Function B

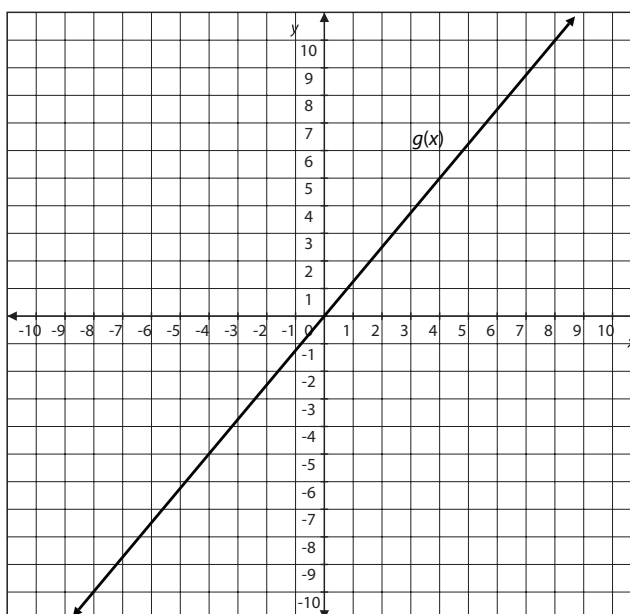


4. Compare the properties of each function.

Function A

$$f(x) = -5x$$

Function B



continued

NAME: _____

UNIT 3 • LINEAR AND EXPONENTIAL FUNCTIONS

Lesson 5: Comparing Functions

5. Compare the properties of each function.

Function A

The table below describes the profit in dollars that a restaurant makes for the beverages it sells.

| Number of beverages sold (x) | Profit ($f(x)$) |
|----------------------------------|-------------------|
| 0 | 0 |
| 25 | 29.25 |
| 50 | 58.50 |

Function B

For each hamburger sold, the same restaurant makes a profit of \$0.40.

6. Compare the properties of each function.

Function A

A local newspaper began with a circulation of 1,300 readers in its first year. Since then, its circulation has increased by 150 readers per year.

Function B

The function $g(x) = 225x + 950$ represents the circulation of another newspaper where $g(x)$ represents total subscriptions and x represents the number of years since its first year.

7. Compare the properties of each function.

Function A

A rental store charges \$40 to rent a steam cleaner, plus an additional \$4 per hour.

Function B

The table below shows the total cost in dollars to rent a steam cleaner at a different rental store. $g(x)$ represents the total cost after x hours.

| Hours (x) | Total cost ($g(x)$) |
|---------------|-----------------------|
| 3 | 46 |
| 4 | 53 |
| 5 | 60 |
| 6 | 67 |

continued

NAME: _____

UNIT 3 • LINEAR AND EXPONENTIAL FUNCTIONS

Lesson 5: Comparing Functions

8. Compare the properties of each function.

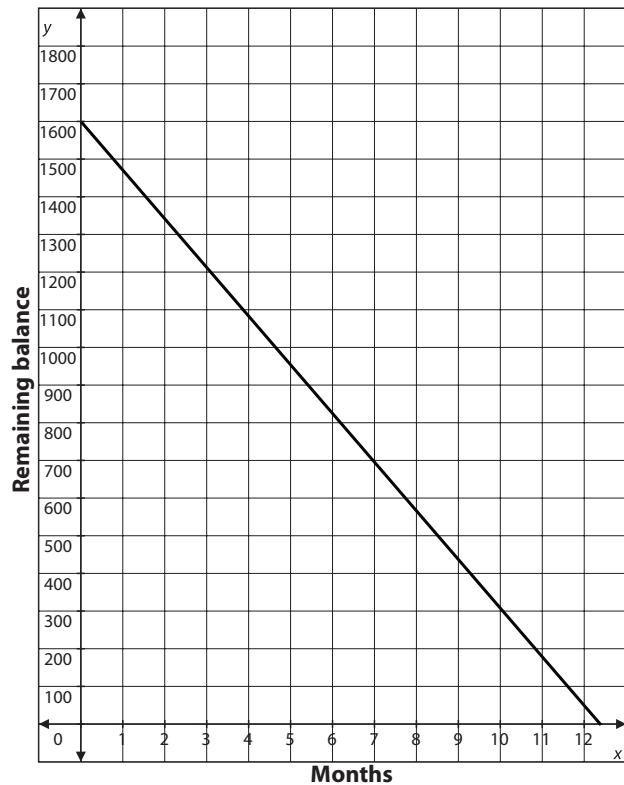
Function A

The table shows the remaining balance in dollars, $f(x)$, of the cost of car repairs after x months.

| Months (x) | Remaining balance ($f(x)$) |
|----------------|------------------------------|
| 0 | 1560 |
| 1 | 1430 |
| 2 | 1300 |
| 3 | 1170 |

Function B

The graph shows the remaining balance in dollars, $g(x)$, of the cost of car repairs after x months.



9. Compare the properties of each function. What do the rate of change and y-intercept mean in terms of the scenarios?

Function A

The function $f(x) = 7.5 - 0.25x$ represents the pounds of puppy food remaining, $f(x)$, when the puppy is fed the same amount each day for x days.

Function B

The table represents the amount in pounds of puppy food remaining, $g(x)$, when the puppy is fed the same amount each day for x days.

| Days (x) | Remaining food ($g(x)$) |
|--------------|---------------------------|
| 4 | 9 |
| 5 | 8.75 |
| 6 | 8.5 |
| 7 | 8.25 |

continued

NAME: _____

UNIT 3 • LINEAR AND EXPONENTIAL FUNCTIONS

Lesson 5: Comparing Functions

10. Compare the properties of each function. What do the rate of change and y -intercept mean in terms of the scenarios?

Function A

Reggie bicycled 15 miles last week and plans to bicycle 20 miles each additional week.

Function B

The graph represents the total number of miles Zac plans to have bicycled by the end of each week.

