1. Write the equation of the line passing through (-4, 16) and (5, 34)

$m = \frac{34-16}{5+4} = \frac{18}{9} = 2$

$y - 34 = 2(x - 5)$

$y - 34 = 2x - 10$

$+34 \quad +34$

$y = 2x + 24$

2. Solve: $-4(2x + 3) \leq 20 - 4x$

$-8x - 12 \leq 20 - 4x$

$+4x \quad +4x$

$-4x - 12 \leq 20$

$+12 \quad +12$

$-4x \leq 32$

$\frac{-4x}{-4} \leq \frac{32}{-4}$

$x \geq -8$

3. Write the equation used to solve the following: 3 consecutive odd integers have a sum of -45

x

$x + 2$

$x + 4$

$x + x + 2 + x + 4 = -45$

$3x + 6 = -45$

e the following equation for b: $ax + by = c$

$-ax \quad -ax$

$\frac{by}{y} = \frac{c - ax}{y}$

$b = \frac{c - ax}{y}$

Comparing Linear Functions

Practice 2.8: Comparing Linear Functions

A

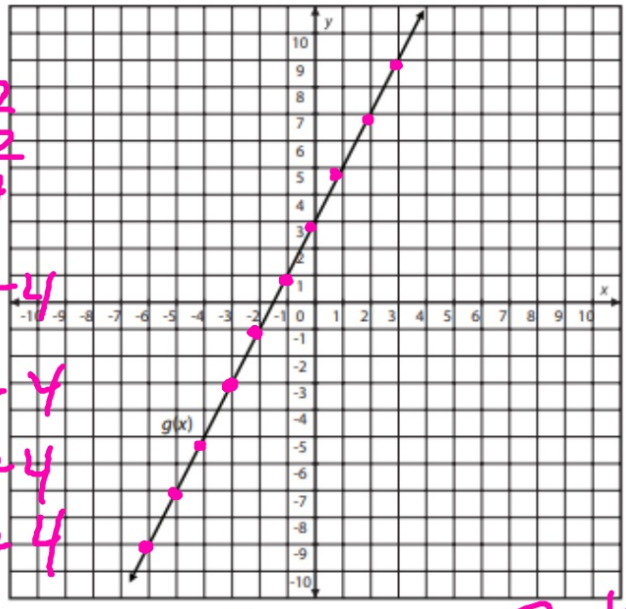
Compare the properties of the linear functions.

1. 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



m=-4

+3 +3 +1

-12 -12 -4

+1 +1 +1 +1

0 -4 -8 -12 -16

-4 -4 -4 -4

m=2

b=3

m=-4

b=-4

Rate of Change 4

Rate of change 2

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

Function B

Function A

Function A

x	$f(x)$
−8	1
0	2
4	2.5
8	3

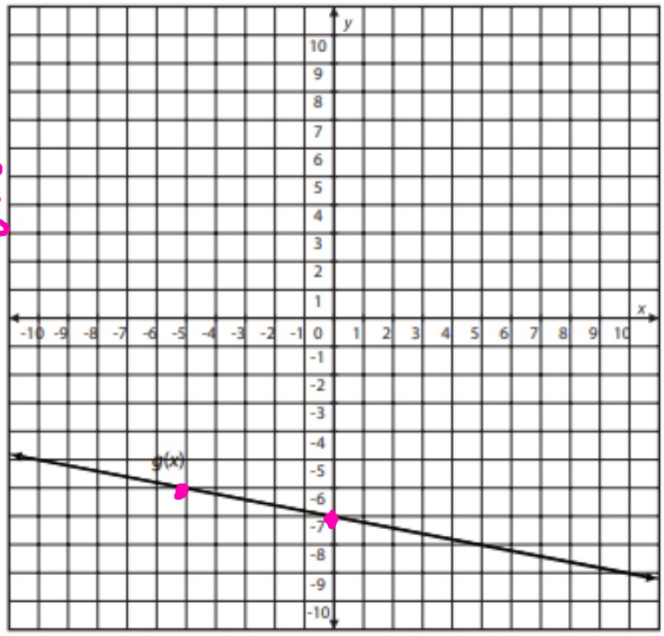
+8 < +4 < +4

+1 > +.5 > +.5

$m = \frac{1}{8}$

$b = 2$

Function B



$m = -\frac{1}{5}$

$b = -7$

3. Compare the properties of each function.

Greater rate of change: A

y-incpt: the same

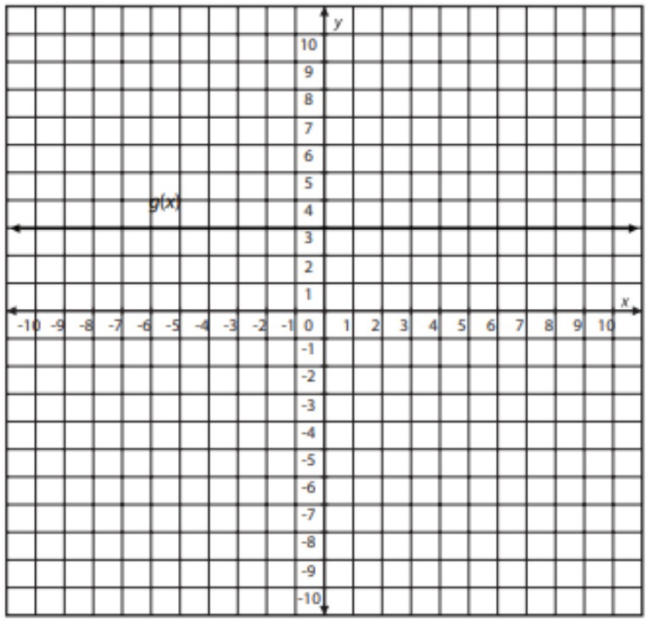
Function A

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

$m = \frac{1}{4}$

$b=3$

Function B



$m=0$

$b=3$

4. Compare the properties of each function.

Greater rate of change
Function A

y-incpt: SAME

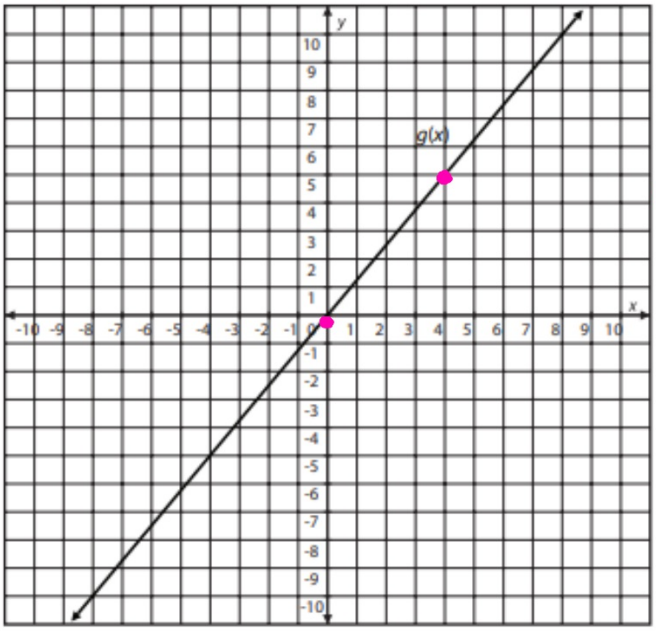
Function A

$f(x) = -5x$

$m = -5$

$b = 0$

Function B



$m = \frac{5}{4}$

$b = 0$

5. Compare the properties of each function.

Greater rate of change

Function A

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

Number of beverages sold (x)	Profit ($f(x)$)
0	0
25	29.25
50	58.50
75	87.75

25 → 29.25

$m = \$1.17$ per bev.

$b = 0$

Function B

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

$m = \$0.40$ per hamb.

$b = 0$

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.

b = 1300
m = 150
Greater y-incpt
Funct. A

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.

b = 950
m = 225
Greater rate of change → Function B

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.

$m=4$

$b=40$

Function B

The following table 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

$1<$ >7

$m=7$

$b=25$

Greater y-intercept Function A

Greater rate of change Function B

8. Compare the properties of each function.

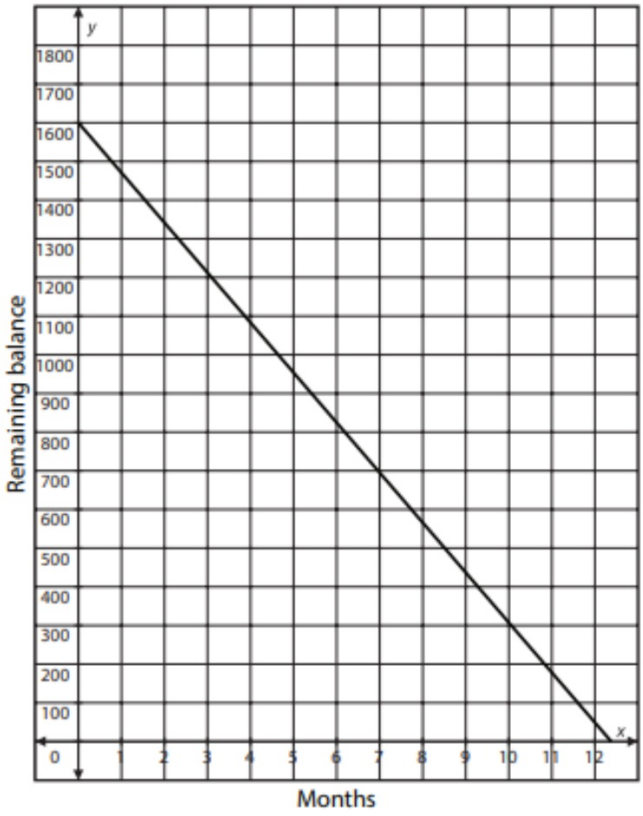
Function A

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

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.