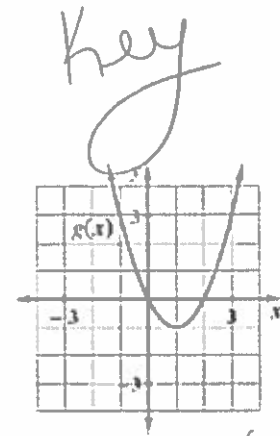


Chapter 2 Test Prep

1. Completely describe the graph shown at the right. Write a minimum of 6 unique statements. Be sure you can address all questions listed on the **Graph Investigation Questions sheet**.



- It is a non-linear function
- It is a parabola
- The vertex is $(1, -1)$
- It opens up.
- The x-intercepts are $(0, 0)$ and $(2, 0)$.

- The y-intercept is $(0, 0)$
- There is reflection symmetry over $x = 1$.

2. Identify the domain and range of each of the graphs shown below.

Domain	$-1 \leq x \leq 4$	$-4 \leq x \leq 0$
Range	$-3 \leq y \leq 2$	$0 \leq y \leq 4$

- Domain: \mathbb{R}
- Range: $y \geq -1$

3. Solve each equation. (Simplify expressions)

<p>a. $8x - 7 - 13x + 10 = -7x + 2 + 18x$</p> $-5x + 3 = 11x + 2$ $1 = 16x$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $\frac{1}{16} = x$ </div>	<p>b. $16x - 3 - 12x + 8 = -15 + 4x$</p> $4x + 5 = -15 + 4x$ <p style="text-align: center; font-size: 1.5em;">No Solution</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------

4. Evaluate each expression for the indicated variable.

a. $|9 - m^2| + 3m$ for $m = -2$.

$$= |9 - (-2)^2| + 3(-2)$$

$$= |9 - 4| + (-6)$$

$$= 5 - 6$$

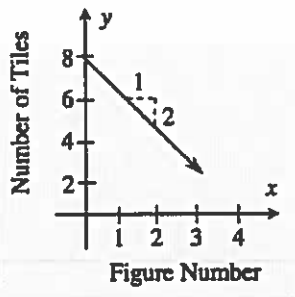
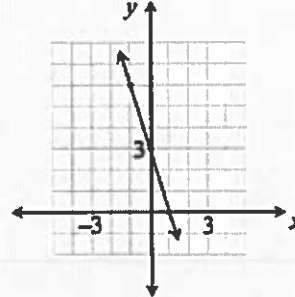
$$= \boxed{-1}$$

b. $\frac{3g+5}{(g-1)(g+6)}$ for $g = 2$.

$$= \frac{3(2) + 5}{(2-1)(2+6)} = \frac{6+5}{1(8)} = \boxed{\frac{11}{8}}$$

Chapter 2 Test Prep

5. Write a linear equation that describes each of the following relationships.

<p>a.</p> 	<p>b.</p> 	<p>c.</p> <p>It costs \$20 plus \$1.50 per hour to rent a golf cart.</p> <p>Write an equation showing the relationship between the cost of renting a cart (y) and the number of hours it was rented (x).</p>
$y = 8 - 2x$	$y = 3 - 3x$	$y = 20 + 1.5x$

6. Write and use equations of lines

A line contains the points $(-3, -7)$ and $(-1, -4)$. Name three more points on this line. Justify your answers.

$$m = \frac{-7 + 4}{-3 + 1} = \frac{-3}{-2} = \frac{3}{2}$$

$$y + 7 = \frac{3}{2}(x + 3) \rightarrow \text{equation of line}$$

$$y = \frac{3}{2}x + \frac{9}{4} - 7$$

$$y = \frac{3}{2}x + 4\frac{3}{4}$$

x	y
0	$4\frac{3}{4}$
2	$7\frac{3}{4}$
4	$10\frac{3}{4}$

Justification:

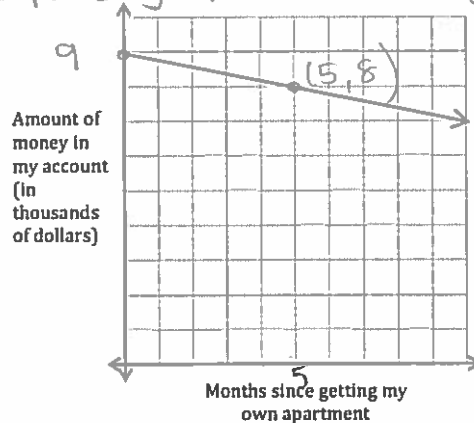
I used pt slope form to write an equation of the line. Then I rewrote this in slope-intercept form. Finally, I chose 3 x-values + found the corresponding y-values.

7. Real world interpretations of slope and y-intercept

Consider the graph with the labeled axes at right.

a. What does the graph represent? Be clear and complete.

The graph shows how the balance in my bank account has changed since getting my own apartment.



will vary

b. What is the real-world interpretation of the slope? (That is, what does the value of the slope tell you?) $m = \frac{1}{5}$ This means that the amount of money in my account drops \$1000 every 5 months.

c. What is the real-world interpretation of the y-intercept? (That is, what does the value of the y-intercept tell you?) $b = 9$

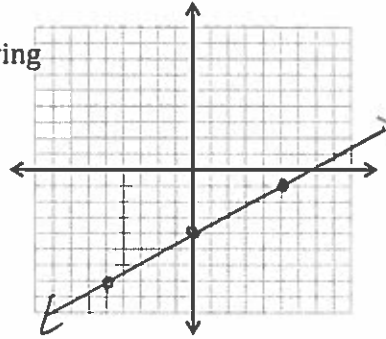
I had \$9000 in my account before I got my own apartment.

Chapter 2 Test Prep

8. *Graph lines*

Without creating a table, graph the following equation:

$$y = \frac{3}{5}x - 4$$



9. *Write equations of lines*

For each situation below, write the equation of the situation described.

- a. A line through the points (12, 3) and (8, 15).

$$m = \frac{15-3}{8-12} = \frac{12}{-4} = -3$$

$$\begin{aligned} y &= -3x + b \\ 15 &= -3(8) + b \\ 15 &= -24 + b \\ 39 &= b \end{aligned}$$

$y = -3x + 39$

- b. A line with a slope of 4 and a y-intercept of 0.4.

$$y = 4x + 0.4$$

- c. For her birthday, Louise got \$100 from her Grammy, but she has been spending \$10.00 each week.

$$y = 100 - 10x$$

- d. A line has intercepts of (6, 0) and (0, 12).

$$m = \frac{12}{-6} = -2$$

$$y = -2x + 12$$

10. *Linear relationships in context*

Jennifer has a new sister named Chloe. Jennifer's mom, who is a pediatrician, has been tracking Chloe's growth. Assume that Chloe's growth rate is constant.

Age (months)	Height (cm)
birth	59
3	63
6	67
9	71
12	75
15	79

- a. How tall was Chloe at birth? 59 cm

- b. How many centimeters does Chloe grow every 3 months? 4 cm

- c. Use the information from parts (c) and (d) to write an equation representing Chloe's growth rate. Let y = height in cm and x = age in months.

$$y = \frac{4}{3}x + 59$$

- d. Use your equation to project Chloe's height at 2 years old.

$$\begin{aligned} y &= \frac{4}{3}(24) + 59 \\ y &= 32 + 59 \\ y &= 91 \end{aligned}$$

91 cm

Chapter 2 Test Prep

11. Domain and Range in context

Andrea receives a \$40 gift card to use at a town pool. It costs her \$8 per visit to swim. A function relating the value of the gift card, v , to the number of visits, n , is $v(n) = 40 - 8n$.

- a. Identify a reasonable domain of the function. Explain why you chose that domain.

$0, 1, 2, 3, 4, 5$ or $0 \leq n \leq 5$, where n is a whole #
she could choose not to go. She can only spend up to \$40

- b. Given that domain, what is the range of the function?

$0 \leq v(n) \leq 40$
 $v(n)$ is a mult. of 8

so she only has
enough to go
a max of 5 times

12. Interpret Function Notation

Use the given graph of the function f to solve each problem.

- a. Find $f(0)$.

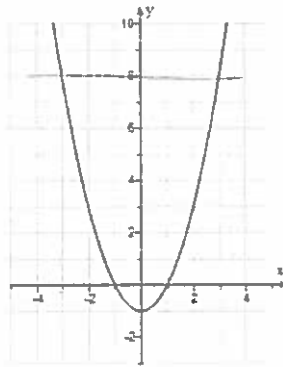
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- b. Find $f(2)$.

3

- c. Find all x -values that make $f(x) = 8$.

-3 and 3



13. Interpret Function Notation

Let $f(x) = x^2 - 5$. Find and simplify the following.

- a. $f(8)$

$$= (8)^2 - 5$$

$$= 64 - 5$$

$$= 59$$

- b. $f(-3)$

$$= (-3)^2 - 5$$

$$= 9 - 5$$

$$= 4$$

- c. Find x if $f(x) = -10$

$$-10 = x^2 - 5$$

$$-5 = x^2$$

$$\sqrt{-5} = x$$

undefined