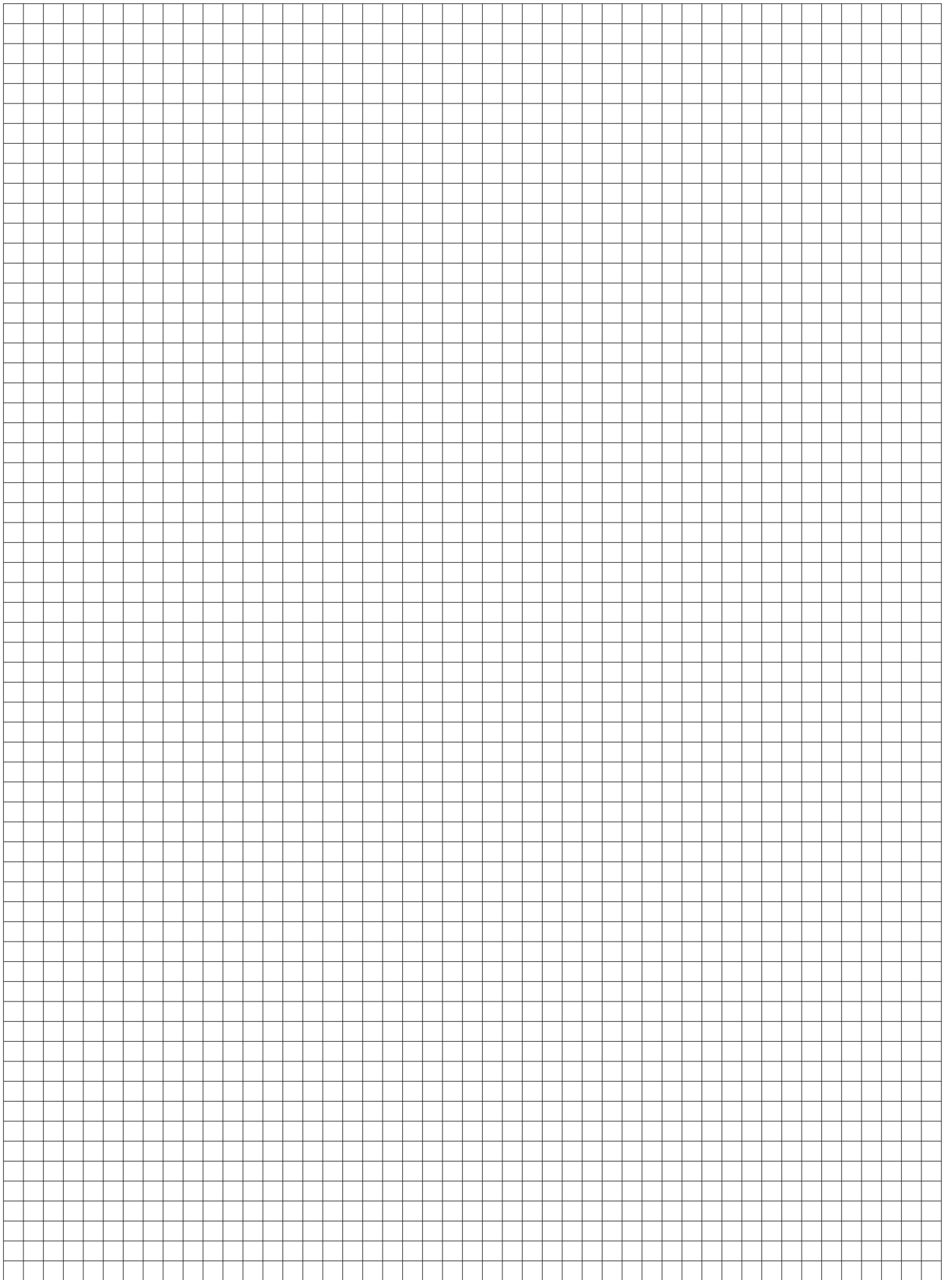


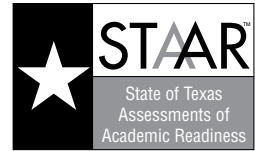
STAAR—Algebra I review

Name: _____

Teacher: _____



STAAR ALGEBRA I REFERENCE MATERIALS



GENERAL FORMULAS

Slope of a line

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Pythagorean theorem

$$a^2 + b^2 = c^2$$

Quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

FORMS OF LINEAR EQUATIONS

Slope-intercept form

$$y = mx + b$$

Point-slope form

$$y - y_1 = m(x - x_1)$$

Standard form

$$Ax + By = C$$

STAAR ALGEBRA I REFERENCE MATERIALS

CIRCUMFERENCE

Circle $C = 2\pi r$ or $C = \pi d$

AREA

Triangle $A = \frac{1}{2}bh$

Rectangle or parallelogram $A = bh$

Rhombus $A = \frac{1}{2}d_1d_2$

Trapezoid $A = \frac{1}{2}(b_1 + b_2)h$

Regular polygon $A = \frac{1}{2}aP$

Circle $A = \pi r^2$

SURFACE AREA

	Lateral	Total
Prism	$S = Ph$	$S = Ph + 2B$
Pyramid	$S = \frac{1}{2}Pl$	$S = \frac{1}{2}Pl + B$
Cylinder	$S = 2\pi rh$	$S = 2\pi rh + 2\pi r^2$
Cone	$S = \pi rl$	$S = \pi rl + \pi r^2$
Sphere		$S = 4\pi r^2$

VOLUME

Prism or cylinder $V = Bh$

Pyramid or cone $V = \frac{1}{3}Bh$

Sphere $V = \frac{4}{3}\pi r^3$

Algebra I EOC Review

Part 16 Multiple Representations

Name: _____

Teacher: _____

Supporting: **A.1.A: Describe independent and dependent quantities in functional relationships.**

Key Points

- A **relation** (whether it is a function or not) describes how one quantity *depends on* another. If the relation is a function, we can also say that one quantity *is a function of* the other.

For example, if you have a part-time job and are paid by the hour, then:

The total money you make *depends on* the number of hours you work

OR

The total money you make *is a function of* the number of hours you work

In this example, the total money is called the **dependent variable** and the number of hours is the **independent variable**.

- If you are given an equation then the **dependent variable** is most often by itself.

For example, in the equation $t = 8.75h$, where t is the total money and h are the number of hours

t is the **dependent variable** and h is the **independent variable**

1. A print shop charges a fixed amount per photocopy and gives a 10% discount off the total cost of the photocopies. The total cost is a function of the number of photocopies made. What is the independent quantity in this situation?
 - A The total cost of the photocopies
 - B The price per photocopy
 - C The amount of the discount
 - D The total number of photocopies made
2. A teacher will determine the total number of books to order for a class using the function $b(n) = 4n$, where n represents the number of students in the class. What is the independent quantity in this situation?
 - F The number of students in the class
 - G The total number of books to order
 - H The number of books each student needs
 - J Not here
3. The sales tax rate at a clothing store is 8.75%. Sales tax on an item is a function of its price. Which of the following is the dependent quantity in this function?
 - A The sales tax rate on the item
 - B The item's price
 - C The amount of sales tax on the item
 - D The item's size

Algebra I EOC Review

Part 16 Multiple Representations

Name: _____

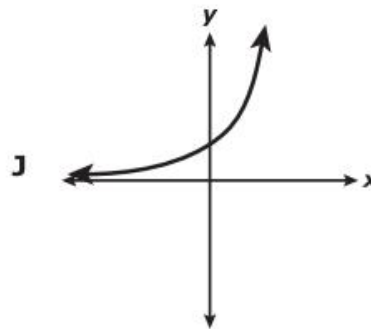
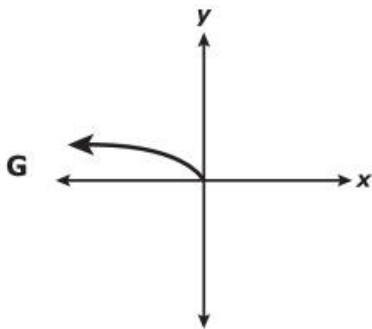
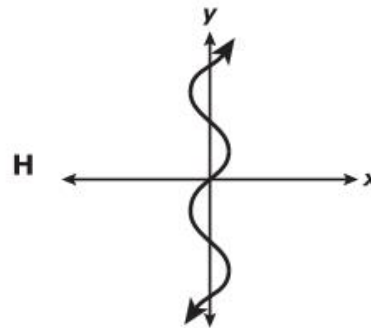
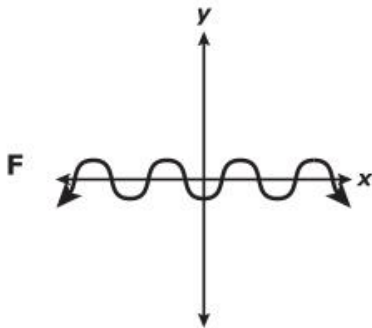
Teacher: _____

Supporting: A.1.B: Gather and record data and use data sets to determine functional relationships between quantities.

Key Points

- A **function** is a relation in which every **input** has a *unique output*.
- If you are looking at a table, set of ordered pairs, or mapping diagram, check that every input has only one output.
- If you are check if a graph is a function, then use the vertical line test.

4. Which graph does not represent y as a function of x ?



5. Which set of ordered pairs represents y as a function of x ?

- A** $\{(-9, 2), (0, 6), (1, -2), (-3, 6)\}$
- B** $\{(-1, 0), (4, 3), (-7, -3), (-1, -8)\}$
- C** $\{(3, 2), (-4, -2), (3, 1), (-4, 1)\}$
- D** $\{(5, 4), (2, 3), (1, 1), (2, 4)\}$

Algebra I EOC Review

Part 16 Multiple Representations

Name: _____

Teacher: _____

Supporting: A.1.B: Gather and record data and use data sets to determine functional relationships between quantities.

Key Points

- A **function** is a relation in which every **input** has a *unique output*.
- If you are looking at a table, set of ordered pairs, or mapping diagram, check that every input has only one output.
- If you are check if a graph is a function, then use the vertical line test.

6. Which of the following relations is a function?

- I. $\{(0, 0), (0, 1), (0, 2)\}$
- II. $\{(0, 0), (1, 1), (2, 4)\}$
- III. $\{(0, 0), (1, 2), (2, 2)\}$
- IV. $\{(0, 0), (1, 2), (1, 3)\}$

F I, II, and III only

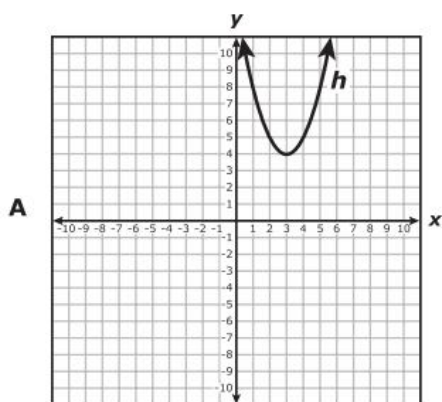
G I and II only

H II and III only

J III and IV only

Readiness: A.1.D: Represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations and inequalities.

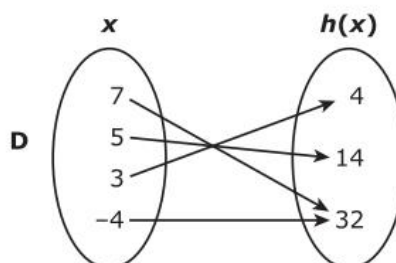
7. The graph of the quadratic function h passes through the points $(-4, 32)$, $(3, 4)$, $(5, 14)$, and $(7, 32)$. Which of the following shows the same relationship as h ?



C

x	$h(x)$
32	-4
4	3
14	5
32	7

B $h(x) = x^2 + 3x + 4$



Algebra I EOC Review

Part 16 Multiple Representations

Name: _____

Teacher: _____

Readiness: A.1.D: Represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations and inequalities.

8. The number of possible pairings of 2 objects selected from a set of x objects can be modeled by $p(x) = 0.5x(x - 1)$. Which table shows this quadratic relationship?

Objects

Number of Objects, x	Possible Pairings, $p(x)$
2	1
4	6
9	28
13	78

F

Objects

Number of Objects, x	Possible Pairings, $p(x)$
2	1
3	3
7	22
13	78

H

Objects

Number of Objects, x	Possible Pairings, $p(x)$
2	1
5	10
8	28
12	66

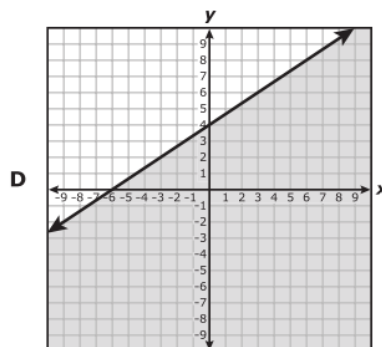
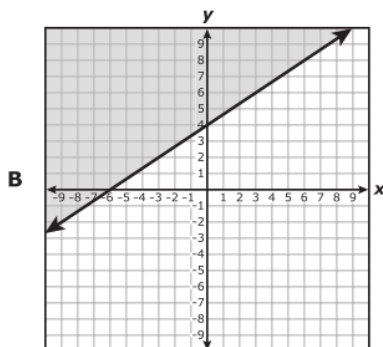
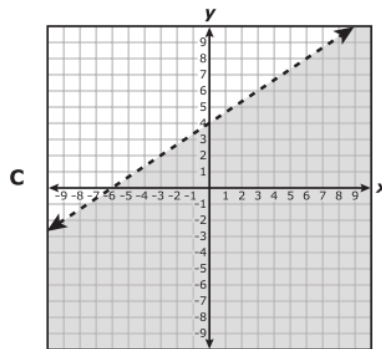
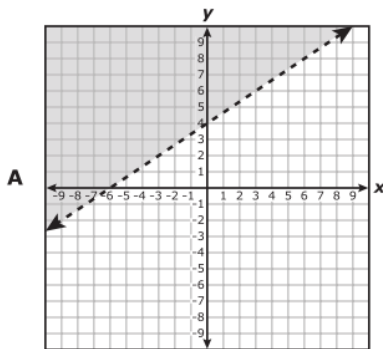
G

Objects

Number of Objects, x	Possible Pairings, $p(x)$
2	1
4	6
10	44
12	66

J

9. Which graph represents the inequality $-2x + 3y > 12$?



Algebra I EOC Review

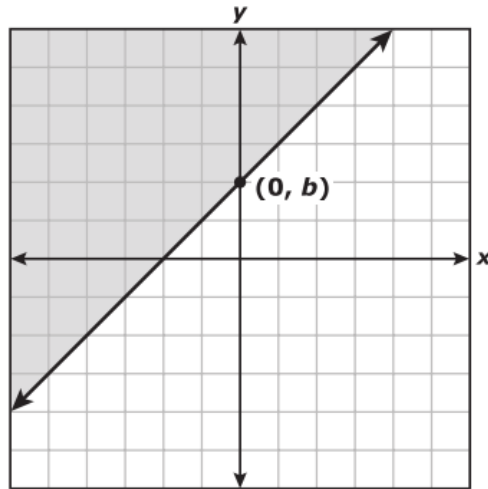
Part 16 Multiple Representations

Name: _____

Teacher: _____

Readiness: A.1.D: Represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations and inequalities.

10. Which inequality can be represented by the graph below?



F $y \geq x + b$

G $x - y \geq -b$

H $x + y \leq b$

J $-y \leq x + b$

11. Which table shows the same relationship as $y = -x^2 + 3x$?

A

x	-2	-1	0	1	2
y	-2	-2	0	4	10

B

x	-2	-1	0	1	2
y	-2	-1	0	1	2

C

x	-2	-1	0	1	2
y	-10	-4	0	2	2

D

x	-2	-1	0	1	2
y	-10	-4	0	4	10

Algebra I EOC Review

Part 1ô Multiple Representations

Name: _____

Teacher: _____

Readiness: A.1.E: Interpret and make decisions, predictions, and critical judgments from functional relationships.

12. The table shows the population, p , of mice in a field at the end of m months.

Mouse Population

Time, m (months)	Population, p
0	6
1	12
2	24
3	48
4	96

Based on the data in the table, what will be the population of mice in the field at the end of 8 months?

- F** 192
- G** 3,072
- H** 1,536
- J** 256
13. One type of redwood tree has an average height of 65 feet when it is 20 years old. If the tree is more than 20 years old, the average height, h , can be modeled by the function $h = 1.95(a - 20) + 65$, where a is the age of the tree in years. Which statement about this situation is true?
- A** Every additional 1.95 ft of length over 20 ft adds 45 years to the age of this type of redwood tree.
- B** For this type of redwood tree, the average height increases by 1.95 ft per year throughout its lifetime.
- C** Each additional year of age over 20 years adds 1.95 ft to the average height of this type of redwood tree.
- D** For this type of redwood tree, the average height increases by 65 ft for every 20 years of growth.

Algebra I EOC Review

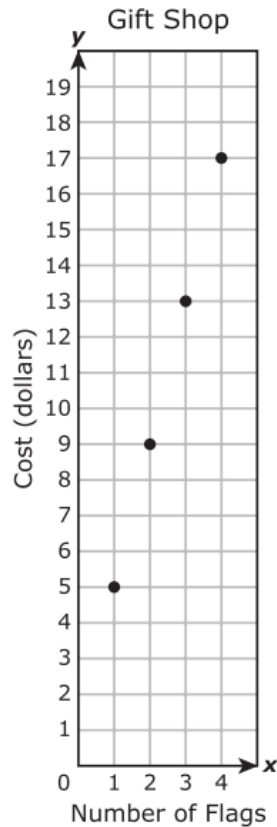
Part 16 Multiple Representations

Name: _____

Teacher: _____

Readiness: A.1.E: Interpret and make decisions, predictions, and critical judgments from functional relationships.

14. The graph shows the cost of purchasing x small flags at a gift shop if the flags are equally priced.



Based on this information, which ordered pair represents an additional point on the graph?

- F** (5, 19)
- G** (8, 34)
- H** (6, 24)
- J** (7, 29)

Algebra I EOC Review

Part 16 Multiple Representations

Name: _____

Teacher: _____

Readiness: A.1.E: Interpret and make decisions, predictions, and critical judgments from functional relationships.

15. The dishwasher at a restaurant is loaded with the same number of dishes every time it is used. The table below shows the total number of dishes washed as a function of the number of times the dishwasher is used.

Restaurant Dishwasher

Number of Times Used	Total Number of Dishes Washed
2	52
4	104
6	156
8	208

Based on the data in the table, what is the total number of dishes that will have been washed when the dishwasher is used 9 times?

Record your answer and fill in the bubbles on your answer document.

16. The population of a town is currently 9,000. The function $p = 9,000 + 8t^2$ can be used to estimate p , the population of the town t years from now. Based on this function, which statement is true?
- F The population of the town is increasing at a constant rate.
 - G The population of the town will reach 10,000 between 11 and 12 years from now.
 - H The population of the town will increase by 256 people two years from now.
 - J The population of the town will increase and then decrease.

Algebra I EOC Review

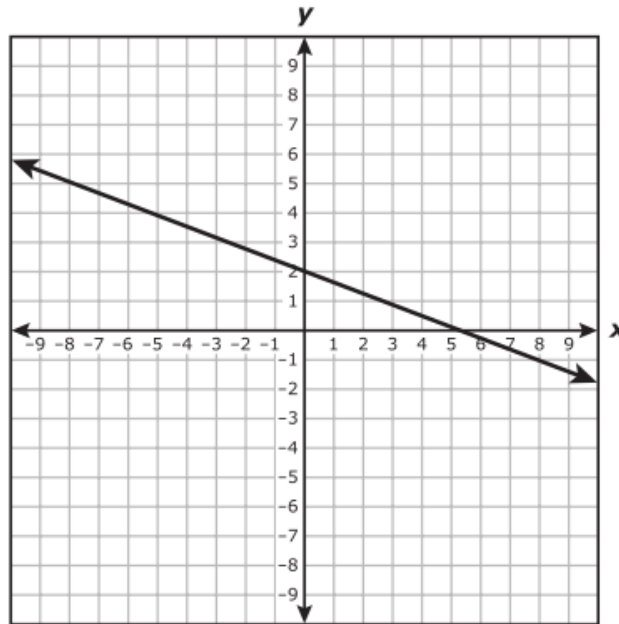
Part 16 Multiple Representations

Name: _____

Teacher: _____

Readiness: A.5.C: Use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.

17. Which situation can be represented by $y = 12x - 4$?
- A The number of eggs, y , in x dozen eggs for sale after 4 dozen eggs are sold
 - B The cost, y , of buying x movie tickets that sell for \$8 each
 - C The cost, y , after a \$4 discount, of buying x T-shirts that sell for \$12 each
 - D The number of inches, y , in an x -foot-tall tree after cutting off 4 feet
18. Which equation can be represented by the graph shown below?



- F $-3x + 8y + 16 = 0$
- G $3x - 8y + 16 = 0$
- H $-3x - 8y - 16 = 0$
- J $3x + 8y - 16 = 0$

Algebra I EOC Review

Part 16 Multiple Representations

Name: _____

Teacher: _____

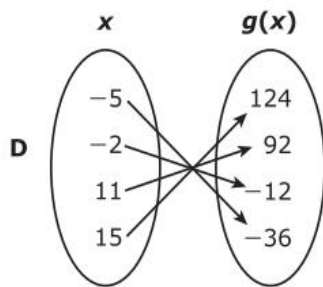
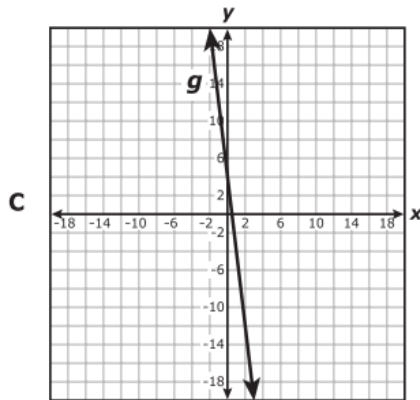
Readiness: A.5.C: Use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.

19. Which representation shows the same relationship as $g(x) = \frac{4}{3}(6x + 3)$?

A

x	$g(x)$
28	3
12	1
-20	-3
-36	-5

B $g = \{(13, 108), (10, 94), (4, 36), (-3, -20)\}$



Algebra I EOC Review

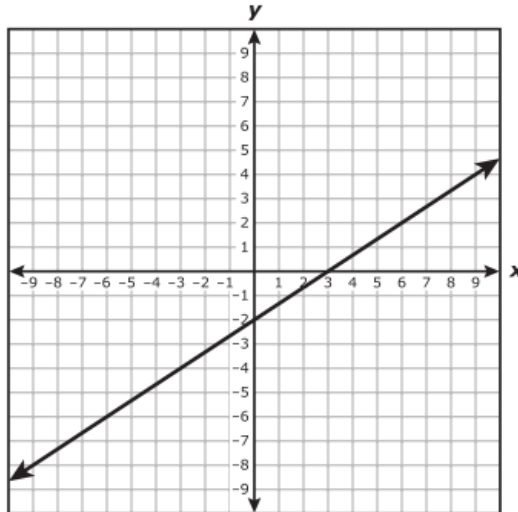
Part 16 Multiple Representations

Name: _____

Teacher: _____

Readiness: A.5.C: Use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.

20. A graph is shown below.



Which of the following equations are represented by the graph?

I. $y = -\frac{3}{2}x - 2$

II. $2x - 3y = 6$

III. $y = (x - 2)(x - 3)$

IV. $y - 2 = \frac{2}{3}(x - 6)$

F II and IV

G I and III

H II and III

J I and IV

Algebra I EOC Review

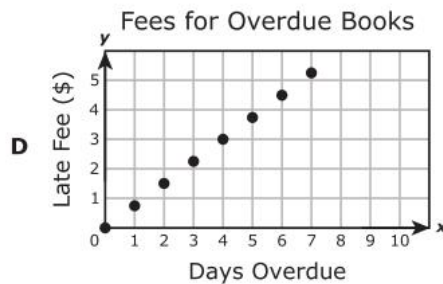
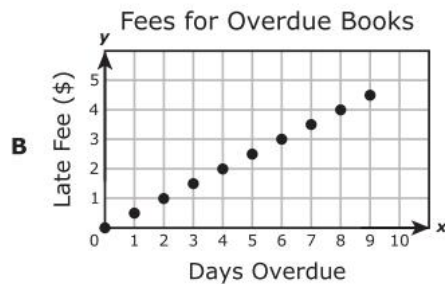
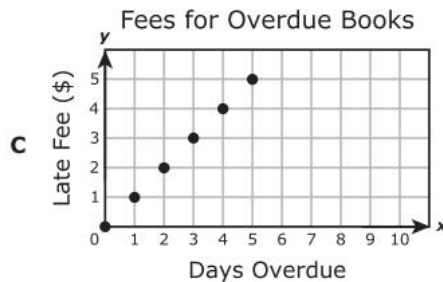
Part 16 Multiple Representations

Name: _____

Teacher: _____

Readiness: A.5.C: Use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.

21. The late fee for overdue books at a library is \$0.25 per day per book, with a maximum late fee of \$5.00 per book. Which graph models the total late fee for 3 books that were checked out on the same day and are overdue?



22. Which set of ordered pairs contains only points that are on the graph of the function $y = 12 - 3x$?

- F** $\{(-3, -27), (0, 0), (6, 54)\}$
- G** $\{(-18, 10), (-6, 6), (18, -2)\}$
- H** $\{(-5, 27), (-1, 15), (8, -12)\}$
- J** $\{(-7, -9), (-4, 0), (2, 18)\}$

Algebra I EOC Review

Part 2ô Domain and Range

Name: _____

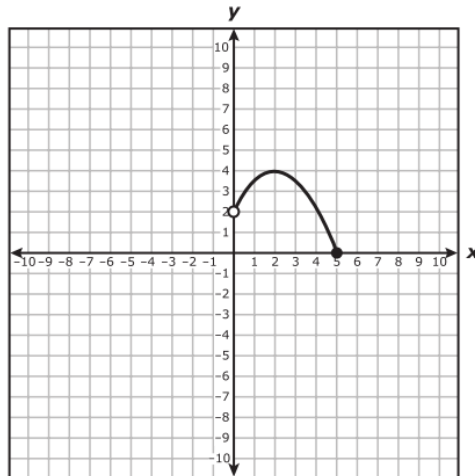
Teacher: _____

Readiness: A.2.B: Identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete.

Key Points

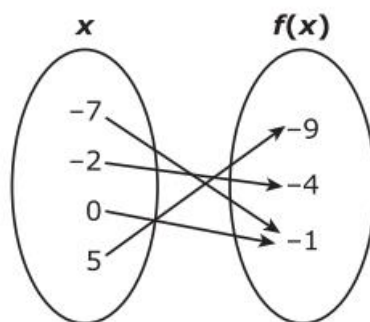
- **Domain** is the set of all input values
- **Range** is the set of all output values

1. What is the domain of the function graphed below?



- A $0 < x \leq 5$
- B $2 < x \leq 5$
- C $0 < x \leq 4$
- D $0 < x < 2$

2. What is the range of the function shown below?



- F $\{-7, -2, 0, 5\}$
- G $\{-9, -4, -1\}$
- H $\{-9, -7, -4, -2, -1, 0, 5\}$
- J $\{-1\}$

Algebra I EOC Review

Part 2ô Domain and Range

Name: _____

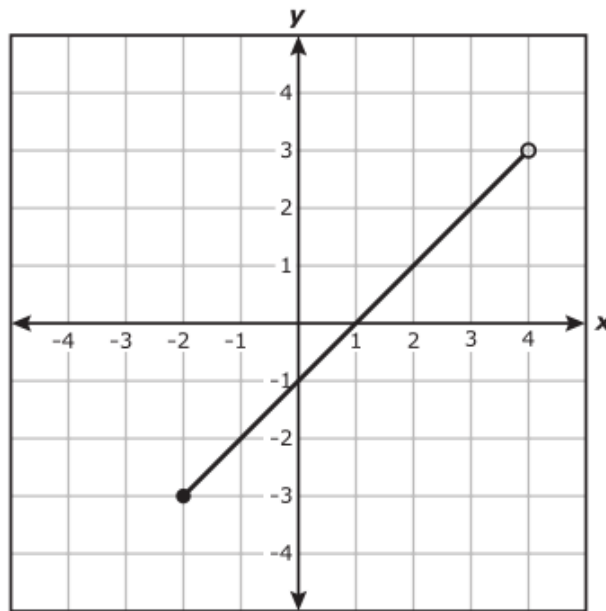
Teacher: _____

Readiness: A.2.B: Identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete.

Key Points

- **Domain** is the set of all input values
- **Range** is the set of all output values

3. Function f is graphed below.



What is the range of f ?

- A** $\{x \mid -2 \leq x < 4\}$
- B** $\{x \mid -2 < x \leq 4\}$
- C** $\{y \mid -3 < y \leq 3\}$
- D** $\{y \mid -3 \leq y < 3\}$

Algebra I EOC Review

Part 2 Domain and Range

Name: _____

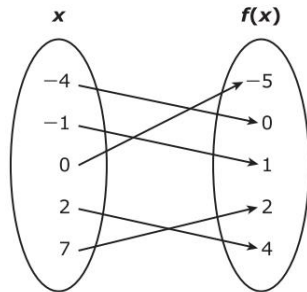
Teacher: _____

Readiness: A.2.B: Identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete.

Key Points

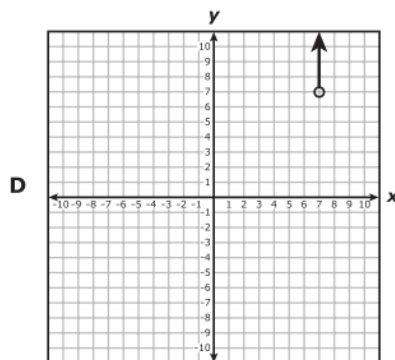
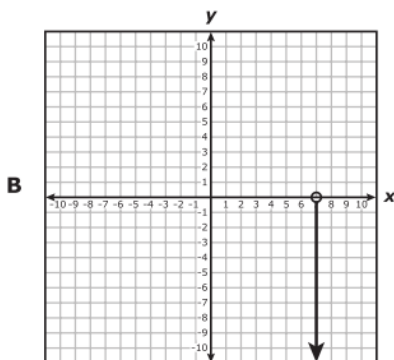
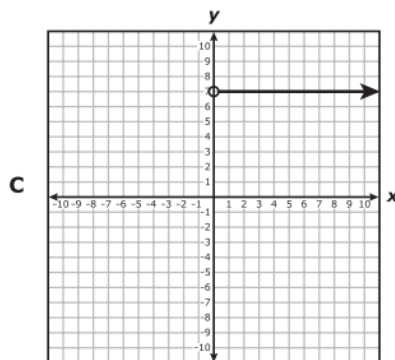
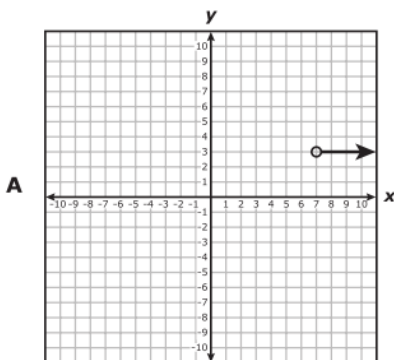
- **Domain** is the set of all input values
- **Range** is the set of all output values

4. The mapping below represents all of the points on the graph of function f .



What is the domain of f ?

- F $\{-4, -1, 0, 2, 7\}$
- G $\{-5, -4, -1, 0, 1, 2, 4, 7\}$
- H $\{-5, 0, 1, 2, 4\}$
- J $\{5\}$
5. Which graph shows a function with a domain of all real numbers greater than 7?



Algebra I EOC Review

Part 2ô Domain and Range

Name: _____

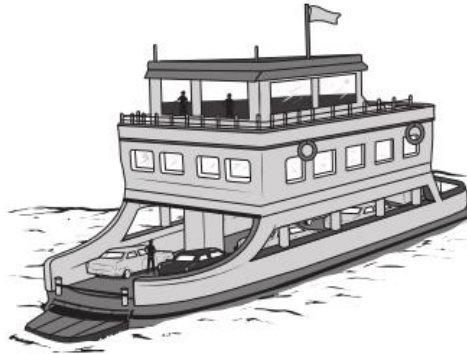
Teacher: _____

Supporting: A.5.B: Determine the domain and range for linear functions in given situations.

6. The total cost of renting a banquet hall is a function of the number of hours the hall is rented. The owner of the banquet hall charges \$85 per half hour up to a maximum of 4 hours plus a \$50 cleaning fee. What is the greatest value in the range for this situation?

Record your answer and fill in the bubbles on your answer document.

7. The number of ferryboat trips, $f(c)$, needed to transport c cars in 1 day can be found using the function $f(c) = \frac{c}{20}$. If there are no more than 5,000 cars transported by ferryboat daily, what is the range of the function for this situation?



- A The set of all integers greater than or equal to 5,000
B The set of all integers from 0 to 5,000
C The set of all integers greater than or equal to 250
D The set of all integers from 0 to 250

Algebra I EOC Review

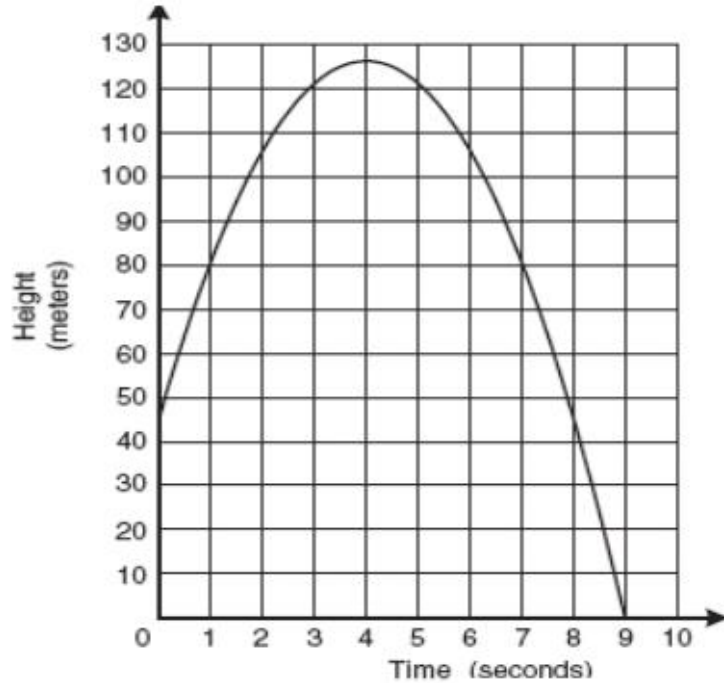
Part 2ô Domain and Range

Name: _____

Teacher: _____

Supporting: A.9.A: Determine the domain and range for quadratic functions in given situations.

8. The graph below shows the height of a baseball from the time it is thrown from the top of a building to the time it hits the ground.



Which is a possible range of the function?

- F** $0 < t < 9$
- G** $0 \leq h \leq 127$
- H** $47 \leq h \leq 127$
- J** $t \leq 9$

Algebra I EOC Review

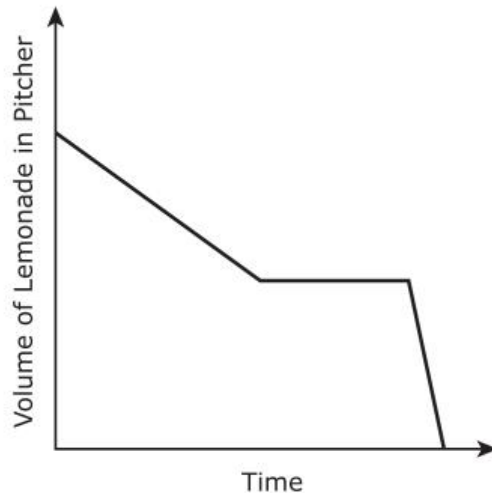
Part 36 Graphs

Name: _____

Teacher: _____

Supporting: A.2.C: Interpret situations in terms of given graphs or creates situations that fit given graphs.

1. Which situation is represented by the graph below?



- A** A man poured lemonade from a full pitcher at a constant rate. Then for several seconds, he stopped pouring from the pitcher. Then the man poured the rest of the lemonade from the pitcher at a faster rate than before.
- B** A boy poured lemonade into an empty pitcher. Then for several seconds, he stopped pouring into the pitcher. Then the boy poured more lemonade into the pitcher at a slower rate than before.
- C** A woman poured lemonade from a full pitcher at a constant rate. Then for several seconds, she stopped pouring from the pitcher. Then the woman poured the rest of the lemonade from the pitcher at a slower rate than before.
- D** A girl poured lemonade into an empty pitcher. Then for several seconds, she stopped pouring into the pitcher. Then the girl poured more lemonade into the pitcher at a faster rate than before.

Algebra I EOC Review

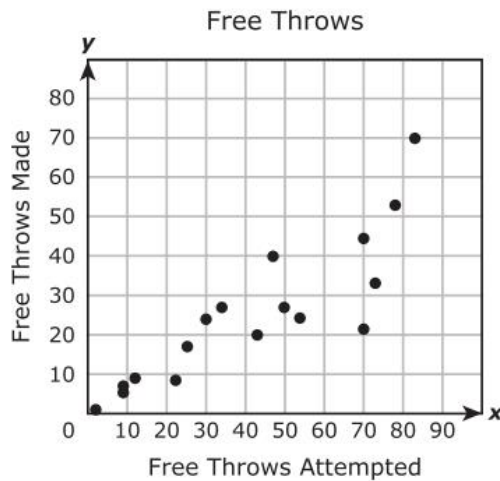
Part 36 Graphs

Name: _____

Teacher: _____

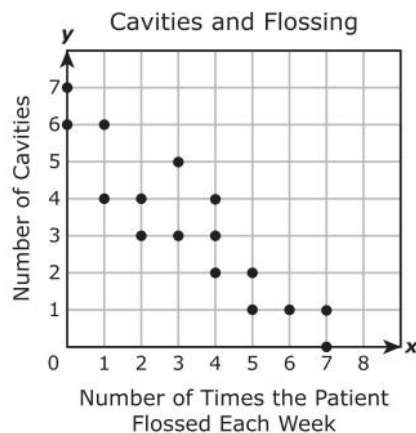
Readiness: A.2.D: Collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem

2. The scatterplot shows the number of free throws that different basketball players attempted and the number that each player made.



Based on the trend in the data, approximately how many free throws would a player be expected to make if he attempted 60 free throws?

- F** 50
G 35
H 25
J 60
3. A dentist made the scatterplot below to show the number of cavities her patients had as it relates to the number of times they flossed their teeth each week.



Which of the following best describes the correlation for the data?

- A** Positive correlation
B Nonlinear correlation
C Negative correlation
D No correlation

Algebra I EOC Review

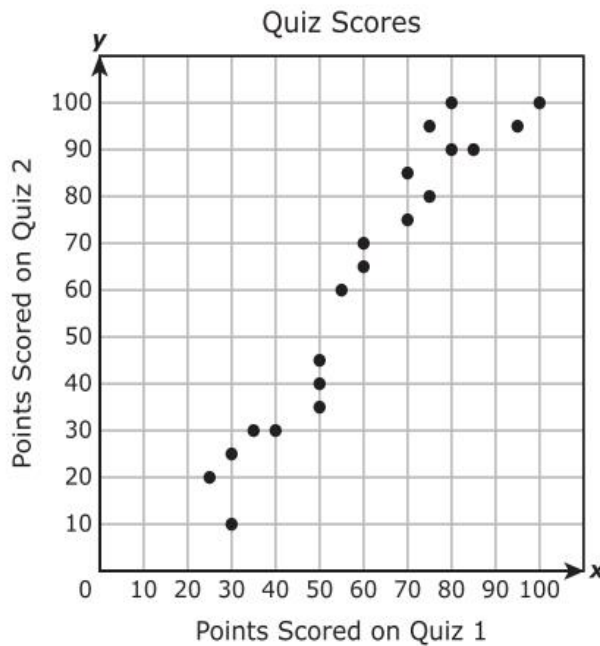
Part 36 Graphs

Name: _____

Teacher: _____

Readiness: A.2.D: Collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem

4. A teacher collected data on 20 students for two different quizzes. The scatterplot below shows the relationship between the number of points scored on Quiz 1 and the number of points scored on Quiz 2.



Which statement describes the data?

- F** The number of points scored on Quiz 2 was less than the number of points scored on Quiz 1 for any student who scored at least 50 points on Quiz 1.
- G** The number of points scored on Quiz 2 was greater than the number of points scored on Quiz 1 for any student who scored 50 or fewer points on Quiz 1.
- H** The number of points scored on Quiz 2 was greater than the number of points scored on Quiz 1 for any student who scored at least 50 points on Quiz 1.
- J** The number of points scored on Quiz 2 was less than the number of points scored on Quiz 1 for any student who scored 50 or fewer points on Quiz 1.

Algebra I EOC Review

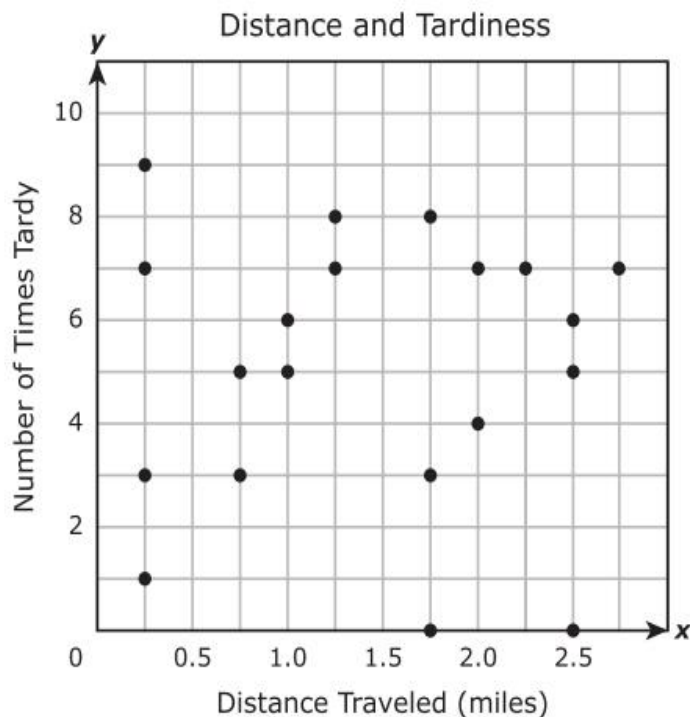
Part 36 Graphs

Name: _____

Teacher: _____

Readiness: A.2.D: Collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem

5. The scatterplot shows the relationship between the distance that students traveled to get to school and the number of times those students were tardy during the school year.



The principal of the school wants to use this information to help him determine if there is a correlation between distance traveled and the number of times tardy. Which statement is a reasonable conclusion that the principal could make?

- A** A student who travels 1.5 miles to get to school will be tardy 9 times during the school year.
- B** A student who travels more than 3 miles to get to school will be tardy at least 7 times during the school year.
- C** There is no correlation between the distance a student travels to get to school and the number of times the student will be tardy during the school year.
- D** There is a nonlinear correlation between the distance a student travels to get to school and the number of times the student will be tardy during the school year.

Algebra I EOC Review

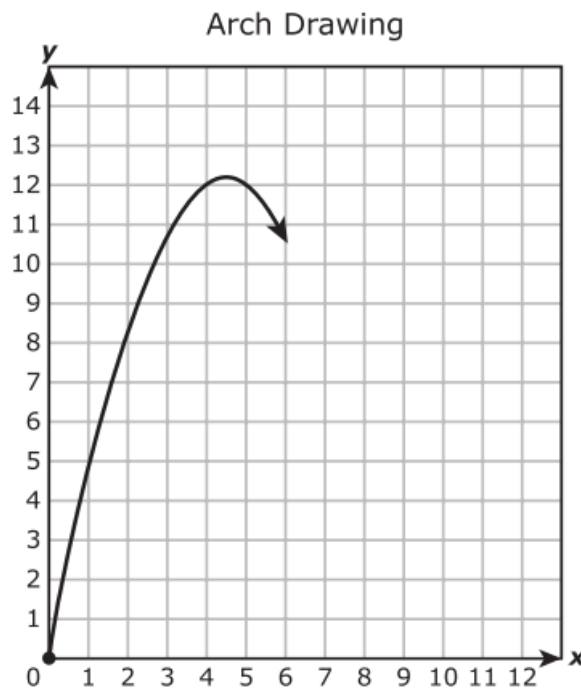
Part 3ô Graphs

Name: _____

Teacher: _____

Readiness: A.9.D: Analyze graphs of quadratic functions and draw conclusions.

6. What is the vertex of the graph of the quadratic function $f(x) = x^2 + 6x + 10$?
- F** (3, -1)
- G** (-3, -1)
- H** (-3, 1)
- J** (3, 1)
7. An architecture student is drawing a graph of an arch. As shown below, the arch has the shape of a parabola that begins at the origin and has a vertex at (4.6, 12.2).



Other than the origin, at which point will the graph intersect the x-axis?

- A** (12.2, 0)
- B** (9.2, 0)
- C** (4.6, 0)
- D** (10.6, 0)

Algebra I EOC Review

Part 3ô Graphs

Name: _____

Teacher: _____

Readiness: A.9.D: Analyze graphs of quadratic functions and draw conclusions.

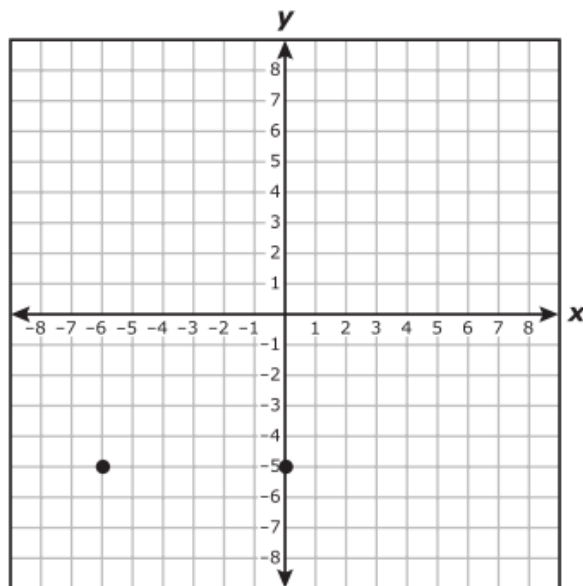
8. Which statement about the quadratic functions below is false?

$$f(x) = -\frac{3}{4}x^2 + 6$$

$$g(x) = -2x^2 - 5$$

$$h(x) = \frac{1}{4}x^2 + 1$$

- F The graphs of two of these functions have a minimum point.
 - G The graphs of all these functions have the same axis of symmetry.
 - H The graphs of two of these functions do not cross the x -axis.
 - J The graphs of all these functions have different y -intercepts.
9. Two points on the graph of a quadratic function are shown on the grid below.



What is the equation for the axis of symmetry of the graph of this function?

- A $x = -3$
- B $y = -3$
- C $x = -5$
- D $y = -5$

Algebra I EOC Review

Part 4 Transformations

Name: _____

Teacher: _____

Supporting: A.2.A: Identify and sketch the general forms of linear ($y=x$) and quadratic ($y=x^2$) parent functions.

1. Which statement about the quadratic parent function is true?

- A Its graph is symmetrical about the x -axis.
- B Its graph is symmetrical about the y -axis.
- C Its domain is the set of all non-negative numbers.
- D Its range is the set of all real numbers.

2. The set of ordered pairs below represents some points on the graph of function f .

$$\{(3, 11), (-1, 3), (5, 15), (-4, -3), (-7, -9)\}$$

What is the parent function of f ?

- F $y = x$
- G $y = 2^x$
- H $y = x^2$
- J $y = \sqrt{x}$

Algebra I EOC Review

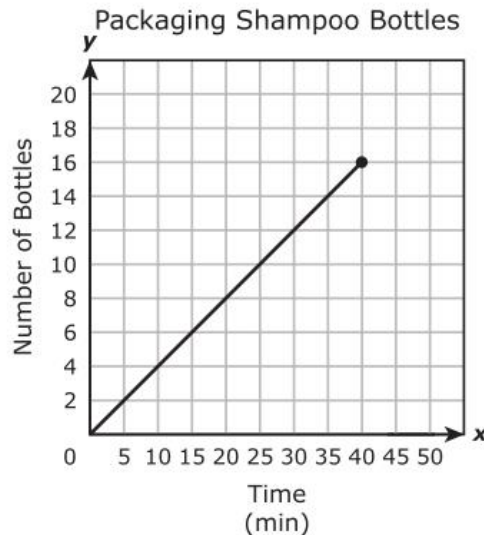
Part 4 Transformations

Name: _____

Teacher: _____

Readiness: A.6.C: Investigate, describe, and predict the effects of changes in m and b on the graph of $y = mx + b$.

3. The graph shows the time it took a worker to package 16 bottles of shampoo.



The next day two workers packaged twice the number of bottles of shampoo in the same amount of time. If this new relationship is graphed on the same coordinate grid, which statement is true?

- A The new graph would have a y -intercept at 80.
 - B The new graph would be steeper than the original graph.
 - C The new graph would be less steep than the original graph.
 - D The new graph would have a y -intercept at 8.
4. Two functions are given below.

$$f(x) = -4x + 1$$

$$g(x) = -4x + \frac{1}{2}$$

How does the graph of f compare with the graph of g ?

- F The graph of f is less steep than the graph of g .
- G The graph of f has the same y -intercept as the graph of g .
- H The graph of f is parallel to the graph of g .
- J The graph of f is steeper than the graph of g .

Algebra I EOC Review

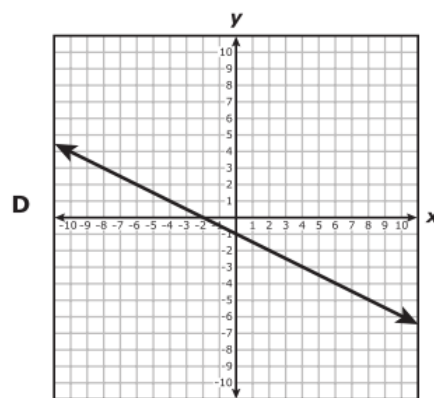
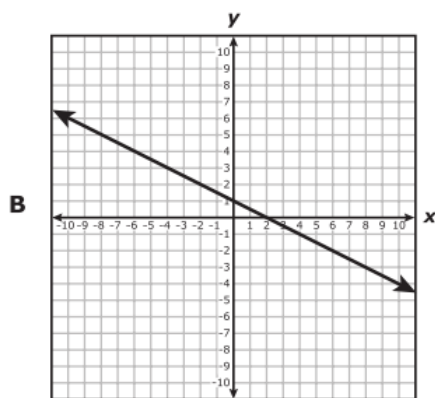
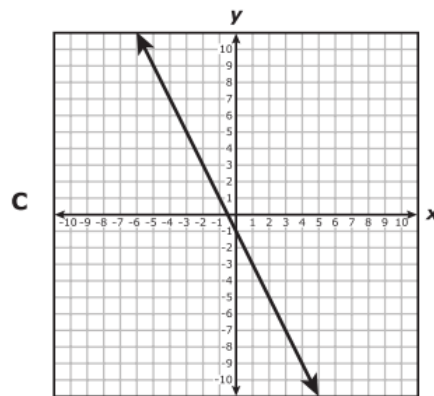
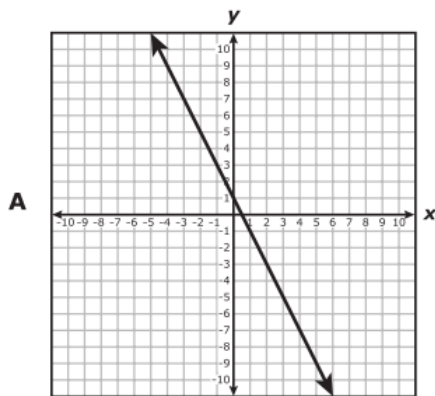
Part 4∘ Transformations

Name: _____

Teacher: _____

Readiness: A.6.C: Investigate, describe, and predict the effects of changes in m and b on the graph of $y = mx + b$.

5. The slope and y -intercept of the line represented by $y = \frac{2}{5}x + \frac{3}{15}$ are both divided by $-\frac{1}{5}$ to create a new line. Which graph represents the new line?



6. The graph of line p represents $y = \frac{1}{5}x - 1$. If the slope of line p is multiplied by -10 to create line r , which statement about the graphs of the two lines is true?

- F** Line r intersects line p .
- G** Line r is parallel to line p .
- H** Line r is 10 units above line p .
- J** Line r is 10 units below line p .

Algebra I EOC Review

Part 4ô Transformations

Name: _____

Teacher: _____

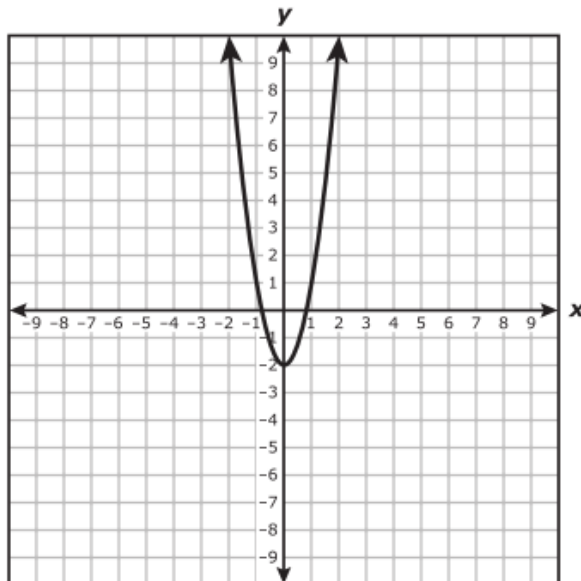
Readiness: A.6.C: Investigate, describe, and predict the effects of changes in m and b on the graph of $y = mx + b$.

7. If the graph of $y = 9x + 4$ is translated 4 units up, which equation describes the new graph?

- A $y = 9x + 8$
- B $y = 13x + 4$
- C $y = 13x + 8$
- D $y = 4x + 4$

Supporting: A.9.B: Investigate, describe, and predict the effects of changes in a on the graph of $y = ax^2 + c$.

8. The graph of $y = 3x^2 - 2$ is shown below.



If the coefficient of x^2 is changed from 3 to another positive number to create a new function, how will the graph of the new function compare with the graph of the original function?

- F The x -intercepts of the new graph will be the same as the x -intercepts of the original graph.
- G The vertex of the new graph will be different from the vertex of the original graph.
- H The new graph will be wider or narrower than the original graph.
- J The new graph will open in the opposite direction as the original graph.

Algebra I EOC Review

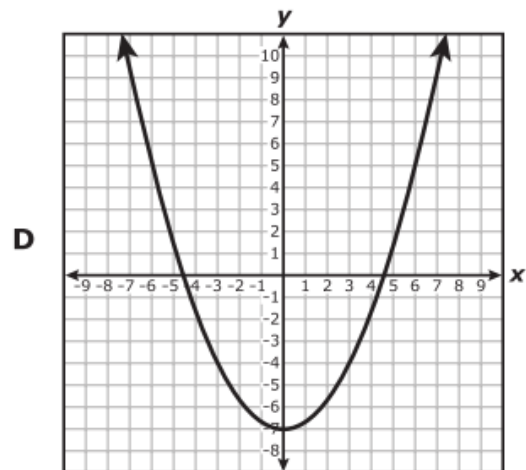
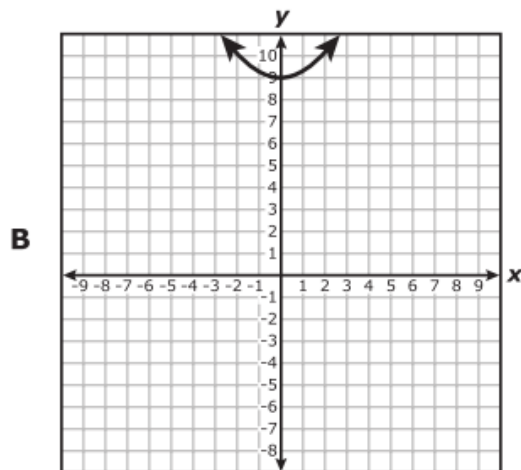
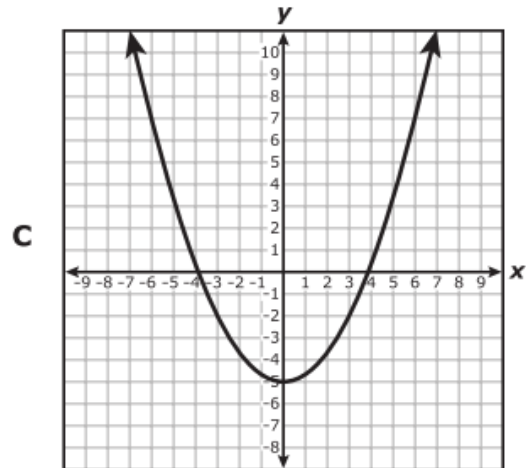
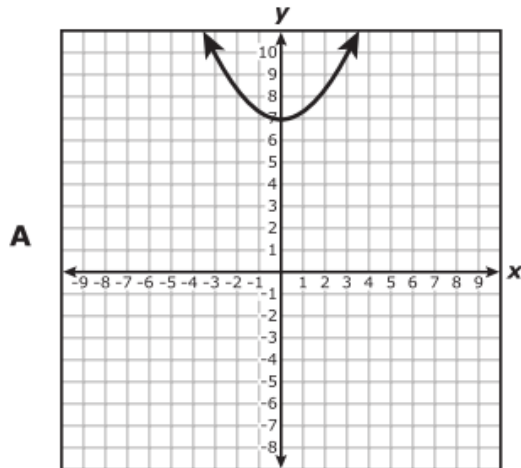
Part 4ê Transformations

Name: _____

Teacher: _____

Supporting: A.9.C: Investigate, describe, and predict the effects of changes in c on the graph of $y = ax^2 + c$.

9. Which graph can be obtained by translating the graph of $h(x) = 0.33x^2 + 2$ down 7 units?



Algebra I EOC Review

Part 5ô Linear Functions

Name: _____

Teacher: _____

Supporting: A.5.A: Determine whether or not given situations can be represented by linear functions.

1. Which problem situation cannot be described by a linear function?

A The perimeter of a rectangle with a length 5 times as long as the width

B The circumference of a circle with a radius length of x

C The value of 10 nickels and x quarters

D The amount each person pays if x people have a restaurant bill of \$250.00

Readiness: A.5.C: Use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.

2. Which of the following is not a correct description of the graph of the function $y = -2x - 7$?

F The graph of the function contains the point $(-2, -3)$, and when the value of x increases by 1 unit, the value of y decreases by 2 units.

G The graph of the function contains the points $(-1, -5)$, $(2, -11)$, and $(4, -15)$.

H The graph of the function is a line that passes through the point $(0, -7)$ with a slope of -2 .

J The graph of the function contains the points $(0, -7)$, $(1, -9)$, and $(3, -1)$.

3. Which situation can be represented by $y = 12x - 4$?

A The number of eggs, y , in x dozen eggs for sale after 4 dozen eggs are sold

B The cost, y , of buying x movie tickets that sell for \$8 each

C The cost, y , after a \$4 discount, of buying x T-shirts that sell for \$12 each

D The number of inches, y , in an x -foot-tall tree after cutting off 4 feet

4. Which set of ordered pairs contains only points that are on the graph of the function $y = 12 - 3x$?

F $\{(-3, -27), (0, 0), (6, 54)\}$

G $\{(-18, 10), (-6, 6), (18, -2)\}$

H $\{(-5, 27), (-1, 15), (8, -12)\}$

J $\{(-7, -9), (-4, 0), (2, 18)\}$

Algebra I EOC Review

Part 5 Linear Functions

Name: _____

Teacher: _____

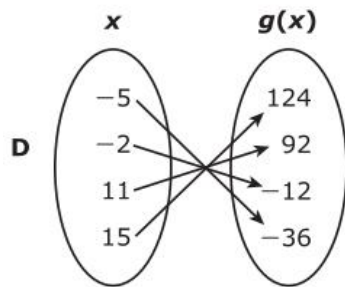
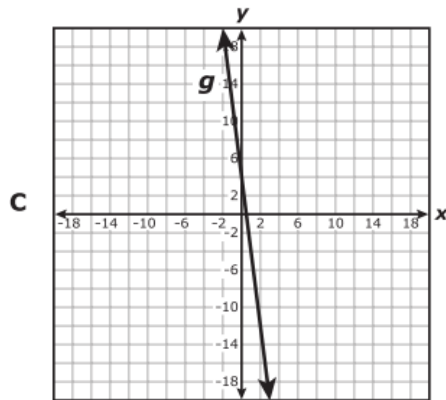
Readiness: A.5.C: Use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.

5. Which representation shows the same relationship as $g(x) = \frac{4}{3}(6x + 3)$?

A

x	$g(x)$
28	3
12	1
-20	-3
-36	-5

B $g = \{(13, 108), (10, 94), (4, 36), (-3, -20)\}$



Algebra I EOC Review

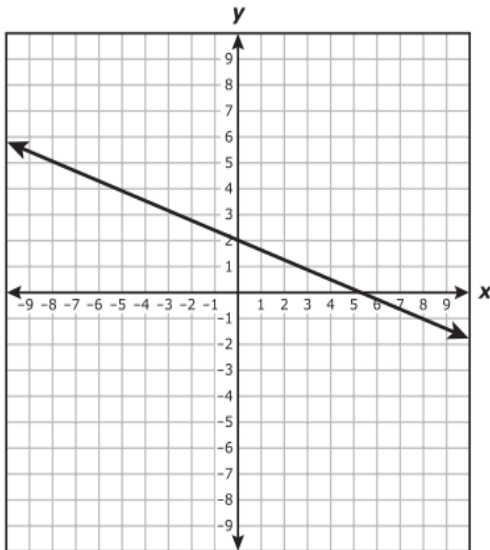
Part 5 Linear Functions

Name: _____

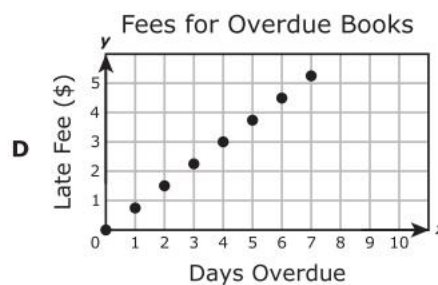
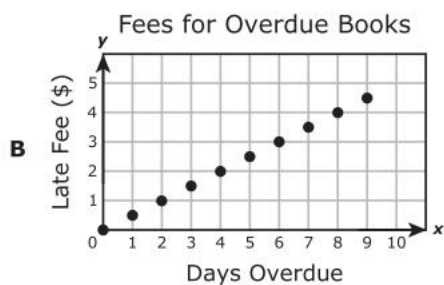
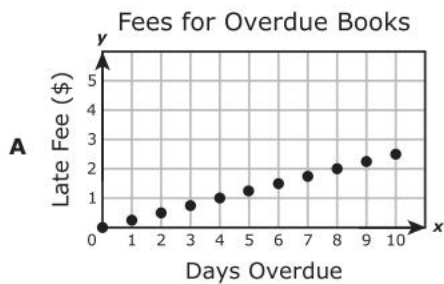
Teacher: _____

Readiness: A.5.C: Use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.

6. Which equation can be represented by the graph shown below?



- F $-3x + 8y + 16 = 0$
- G $3x - 8y + 16 = 0$
- H $-3x - 8y - 16 = 0$
- J $3x + 8y - 16 = 0$
7. The late fee for overdue books at a library is \$0.25 per day per book, with a maximum late fee of \$5.00 per book. Which graph models the total late fee for 3 books that were checked out on the same day and are overdue?



Algebra I EOC Review

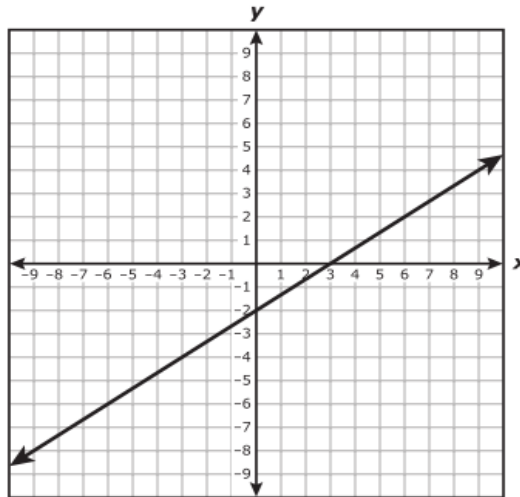
Part 5ô Linear Functions

Name: _____

Teacher: _____

Readiness: A.5.C: Use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.

8. A graph is shown below.



Which of the following equations are represented by the graph?

I. $y = -\frac{3}{2}x - 2$

II. $2x - 3y = 6$

III. $y = (x - 2)(x - 3)$

IV. $y - 2 = \frac{2}{3}(x - 6)$

A II and IV

B I and III

C II and III

D I and IV

Algebra I EOC Review

Part 5 Linear Functions

Name: _____

Teacher: _____

Supporting: A.6.A: Develop the concept of slope as rate of change and determine slopes from graphs, tables, and algebraic representations.

9. Which table shows the same rate of change of y with respect to x as $y = 4 - \frac{5}{8}x$?

A

x	y
-3	-12
-1	-4
2	8
5	20

C

x	y
-4	6.5
2	2.75
4	1.5
8	-1

B

x	y
-4	10.4
2	0.8
4	-2.4
8	-8.8

D

x	y
-3	12
-1	4
2	-8
5	-20

Supporting: A.6.D: Graph and write equations of lines given characteristics such as two points, a point and a slope, or a slope and y-intercept.

10. What is the equation of the line that has a slope of 0 and passes through the point $(6, -8)$?

F $x = 6$

G $y = 6$

H $x = -8$

J $y = -8$

11. What is the equation in standard form of the line that passes through the point $(1, 24)$ and has a slope of -0.6 ?

A $3x + 5y = 125$

B $3x + 5y = 77$

C $3x + 5y = 123$

D $3x + 5y = 115$

Algebra I EOC Review

Part 5 Linear Functions

Name: _____

Teacher: _____

Supporting: A.6.G: Relate direct variation to linear functions and solve problems involving proportional change.

- 12.** The mass of a substance varies directly with the volume of the substance. The volume of 100 kilograms of the substance is 80 liters. What is the volume, in liters, of 3.2 kilograms of this substance?

Record your answer and fill in the bubbles on your answer document.

- 13.** The value of y varies directly with x . Which function represents the relationship between

x and y if $y = \frac{20}{3}$ when $x = 30$?

F $y = 200x$

G $y = \frac{2}{9}x$

H $y = \frac{110}{3}x$

J $y = \frac{9}{2}x$

Algebra I EOC Review

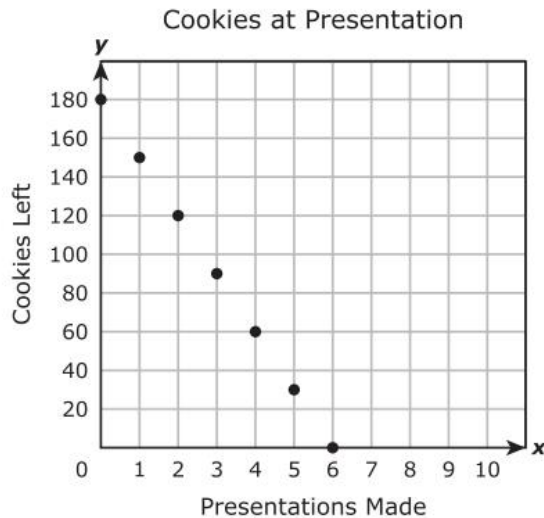
Part 6ô Interpreting Linear Functions

Name: _____

Teacher: _____

Readiness: A.6.B: Interpret the meaning of slope and intercepts in situations using data, symbolic representations, or graphs.

1. The graph shows the relationship between the number of cookies a presenter at a convention had left to give away and the number of presentations she had made.



What does the x-intercept of the graph represent?

- A The number of cookies the presenter had before making any presentations
 - B The maximum number of cookies the presenter gave away during every presentation
 - C The number of presentations the presenter made per hour
 - D The maximum number of presentations the presenter made before running out of cookies
2. The table shows the playing time in minutes of high-definition videos and the file size of these videos in megabytes (MB).

Videos

Playing Time, x (min)	File Size, y (MB)
0.5	60
1.5	180
2	240
4.5	540
5	600

What does the slope of the graph of this situation represent?

- F The increase in the file size of the video per minute of playing time
- G The file size of each video
- H The playing time of each video
- J The increase in the playing time per MB of video

Algebra I EOC Review

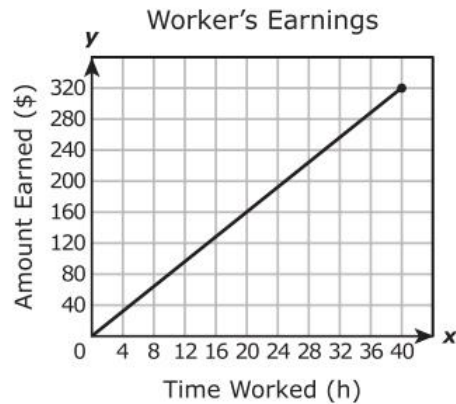
Part 6ô Interpreting Linear Functions

Name: _____

Teacher: _____

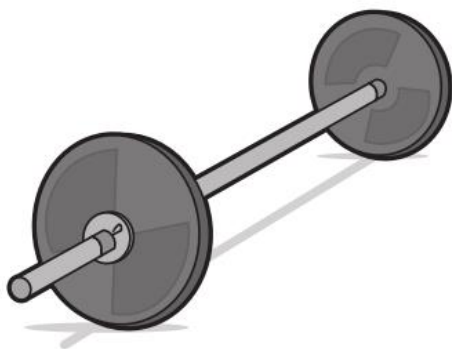
Readiness: A.6.B: Interpret the meaning of slope and intercepts in situations using data, symbolic representations, or graphs.

3. The graph below shows the relationship between the number of dollars a worker earns and the number of hours worked.



What does the slope of the graph represent?

- A The number of hours of work it takes to earn \$320
 - B The amount of money earned per hour
 - C The amount earned for 40 hours of work
 - D The number of hours worked per dollar earned
4. A weightlifter is adding plates of equal weight to a bar. The table below shows the total weight, including the bar, that he will lift depending on the total number of plates on the bar.



Number of Plates	Total Weight (lb)
2	115
4	185
6	255
8	325

Based on this information, which statement is true?

- F The bar weighs 35 lb without any plates.
- G The bar weighs 70 lb without any plates.
- H The bar weighs 45 lb without any plates.
- J The bar weighs 25 lb without any plates.

Algebra I EOC Review

Part 6ô Interpreting Linear Functions

Name: _____

Teacher: _____

Readiness: A.6.F: Interpret and predict the effects of changing slope and y-intercept in applied situations.

5. The amount an appliance repairman charges for each job is represented by the function $t = 50h + 35$, where h represents the number of hours he spent on the job and t represents the total amount he charges in dollars for the job. The repairman plans to change the amount he charges for each job. The amount he plans to charge is represented by the function $t = 50h + 45$. What will be the effect of this change on the amount he charges for each job?
- A The total amount he charges for each job will increase by \$10.
 - B The total amount he charges for each job will decrease by \$10.
 - C The amount he charges per hour will increase by \$10.
 - D The amount he charges per hour will decrease by \$10.
6. The length, in feet, of a small train at an amusement park can be modeled by the function $f(c) = 9c + 14$, where c is the number of passenger cars attached to the locomotive. The original passenger cars were replaced, and the length of the train is now modeled by the function $h(c) = 12c + 14$. Based on this information, which statement describes the change in this situation?
- F The locomotive is now 9 feet long, and the length of each passenger car remained the same.
 - G The locomotive is now 12 feet long, and the length of each passenger car remained the same.
 - H Each passenger car is now 9 feet long, and the length of the locomotive remained the same.
 - J Each passenger car is now 12 feet long, and the length of the locomotive remained the same.
7. The cost of staying at a hotel can be found using the function $y = 129x + 9.95$, where x is the number of days a guest stays at the hotel and y is the cost in dollars. The cost includes a flat fee for Internet access. If the fee for Internet access is not included, which statement is true?
- A The cost is \$9.95 less per day.
 - B The cost is \$9.95 less.
 - C The cost is \$9.95 more per day.
 - D The cost is \$9.95 more.

Algebra I EOC Review

Part 6ô Interpreting Linear Functions

Name: _____

Teacher: _____

Readiness: A.6.F: Interpret and predict the effects of changing slope and y-intercept in applied situations.

8. The table shows the functions used to determine the number of points earned every month by regular and elite members of a dining club who spend d dollars that month at participating restaurants.

Dining Club Points

Member Status	Points Earned
Regular	$r = 5d + 100$
Elite	$e = 8d + 200$

Which statement describes the difference in these situations?

- F** Regular members earn 3 more points for every dollar spent and are automatically awarded 100 more points per month than elite members.
- G** Regular members earn 3 more points for every dollar spent and are automatically awarded 200 more points per month than elite members.
- H** Elite members earn 3 more points for every dollar spent and are automatically awarded 100 more points per month than regular members.
- J** Elite members earn 3 more points for every dollar spent and are automatically awarded 200 more points per month than regular members.
9. Students at a school will sell hats to raise money. There are some hats left over from last year, and 20 boxes of hats will be ordered this year. When the order arrives, the total number of hats the students will have can be determined using the function $f(x) = 48x + 37$, where x represents the number of boxes ordered. If the number of hats per box changes so that the situation is modeled by the function $h(x) = 24x + 37$, then how many fewer hats will the students have available to sell if they still order 20 boxes?

Record your answer and fill in the bubbles on your answer document.

Algebra I EOC Review

Part 6ô Interpreting Linear Functions

Name: _____

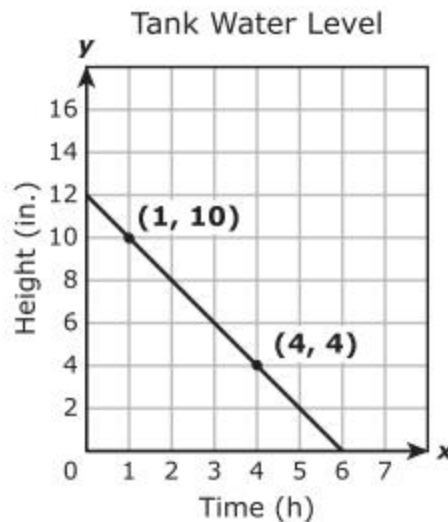
Teacher: _____

Readiness: A.6.F: Interpret and predict the effects of changing slope and y-intercept in applied situations.

10. An airplane's altitude in feet during its descent for landing can be found using the function $f(x) = -300x + 30,000$, where x represents the horizontal distance in miles from where the plane begins its descent. After new government regulations become law, the airplane's descent will be modeled by the function $g(x) = -300x + 30,500$. Which statement describes this change?

- F** The airplane starts its descent from an altitude 500 feet higher.
- G** The airplane starts its descent from an altitude 500 feet lower.
- H** The airplane descends 500 feet per horizontal mile faster.
- J** The airplane descends 500 feet per horizontal mile slower.

11. The graph below shows the water level in a tank being drained at a constant rate.



If the rate at which the tank is drained is changed to 3 inches per hour and the initial water level stays the same, how would the time it takes to empty the tank be affected?

- A** It would take 4 fewer hours.
- B** It would take 1.5 more hours.
- C** It would take 2 fewer hours.
- D** It would take 2 more hours.

Algebra I EOC Review

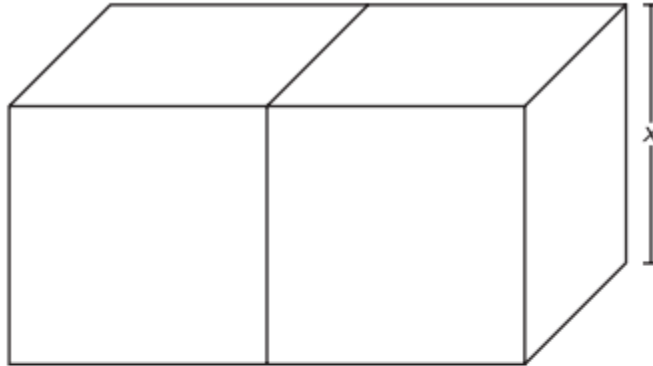
Part 7ô Writing Expressions and Equations

Name: _____

Teacher: _____

Supporting: A.1C: Describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations.

1. The volume of two identical cubes is related to the edge length of the cubes.



Which function represents the combined volume of these cubes?

- A** $y = 2x^3$
- B** $y = x^3$
- C** $y = 8x^3$
- D** $y = 2x^2$
2. A family will travel 350 miles from their house in order to reach Dallas, TX. Which inequality can be used to find all possible values of t , the time it will take this family to reach Dallas in hours, if they travel at an average speed of at least r miles per hour?
- F** $t \leq 350r$
- G** $t > \frac{r}{350}$
- H** $t \leq \frac{350}{r}$
- J** $t > 350r^2$

Algebra I EOC Review

Part 7ô Writing Expressions and Equations

Name: _____

Teacher: _____

Supporting: A.3.A: Use symbols to represent unknowns and variables.

3. A store manager begins each shift with the same total amount of money. She keeps \$200 in a safe and distributes the rest equally to the 5 cashiers in the store. This situation can be represented by the function $y = \frac{(x - 200)}{5}$. What does the variable x represent in this situation?
- A The total amount of money the manager has at the beginning of a shift
 - B The total amount of money the manager has at the end of a shift
 - C The amount of money each cashier has at the beginning of a shift
 - D The amount of money each cashier has at the end of a shift
4. An online music service lets customers download an unlimited number of songs for \$0.25 each after paying a monthly membership fee of \$5.00. The total amount of money a customer spends on music in dollars in a single month can be found using the function $y = 0.25x + 5$. What does the variable x represent in this function?
- F The total amount of money the customer spends on music each month
 - G The number of songs the customer downloads each month
 - H The number of customers that use the music service
 - J The cost of downloading one song

Supporting: A.3.B: Look for patterns and represent generalizations algebraically.

5. The first five terms in a pattern are shown below.

$-0.5, -0.25, 0, 0.25, 0.5, \dots$

If the pattern continues, which expression can be used to find the n th term?

- A $0.75n - 1.25$
- B $-0.25n - 0.25$
- C $0.25n - 0.75$
- D $-0.5n + 0.25$

Algebra I EOC Review

Part 7ô Writing Expressions and Equations

Name: _____

Teacher: _____

Supporting: A.3.B: Look for patterns and represent generalizations algebraically.

6. The first six numbers in a pattern are shown below.

$$\frac{1}{3}, \frac{4}{3}, 3, \frac{16}{3}, \frac{25}{3}, 12, \dots$$

If the pattern continues, which expression can be used to find the n th number in the pattern?

F $\frac{2n}{3}$

G $\frac{n^2}{3}$

H $\frac{n^2}{6}$

J $\frac{2n}{6}$

Supporting: A.7.A: Analyze situations involving linear functions and formulate linear equations or inequalities to solve problems.

7. A tennis player broke the old record for the most matches won in a tournament by at least 2 matches. Which inequality can be used to find all possible values of t , the number of matches the player won, in terms of r , the old record?

A $t \leq r - 2$

B $t \geq 2r$

C $t \leq \frac{r}{2}$

D $t \geq r + 2$

Algebra I EOC Review

Part 7ô Writing Expressions and Equations

Name: _____

Teacher: _____

Supporting: A.7.A: Analyze situations involving linear functions and formulate linear equations or inequalities to solve problems.

8. An architect is designing an office building with n floors that will have an FM radio antenna 15.85 m tall on its roof. Each floor of the building will be 3.9 m high. Which function can be used to find the total height of the building in meters, including the FM antenna?

F $h(n) = 15.85n + 3.9$

G $h(n) = 3.9n + 15.85$

H $h(n) = 3.9n - 15.85$

J $h(n) = 19.75n$

Supporting: A.8.A: Analyze situations and formulate systems of linear equations in two unknowns to solve problems.

9. The sum of the perimeters of two different squares is 32 centimeters, and the difference between their perimeters is 8 centimeters. If x represents the side length of the larger square and y represents the side length of the smaller square, which of the following systems of equations could be used to find the dimensions of the squares?

A $x + y = 32$
 $x - y = 8$

B $4x + 4y = 32$
 $4x - 4y = 8$

C $2x + 2y = 32$
 $2y - 2x = 8$

D $4x + 2y = 32$
 $4x - 2y = 8$

Algebra I EOC Review

Part 7ô Writing Expressions and Equations

Name: _____

Teacher: _____

Supporting: A.8.A: Analyze situations and formulate systems of linear equations in two unknowns to solve problems.

- 10.** A college student needs 11 classes that are worth a total of 40 credits in order to complete her degree. The college offers both 4-credit classes and 3-credit classes. Which system of equations can be used to determine f , the number of 4-credit classes the student can take to complete her degree, and h , the number of 3-credit classes?

F $f + h = 40$
 $4h + 3f = 11$

G $f + h = 11$
 $4h + 3f = 40$

H $f + h = 40$
 $4f + 3h = 11$

J $f + h = 11$
 $4f + 3h = 40$

- 11.** There are 9 books stacked on a shelf. The thickness of each book is either 1 inch or 2 inches. The height of the stack of 9 books is 14 inches. Which system of equations can be used to determine x , the number of 1-inch-thick books in the stack, and y , the number of 2-inch-thick books?

A $x + y = 14$
 $2x + y = 9$

B $x + y = 14$
 $x + 2y = 9$

C $x + y = 9$
 $x + 2y = 14$

D $x + y = 9$
 $2x + y = 14$

Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

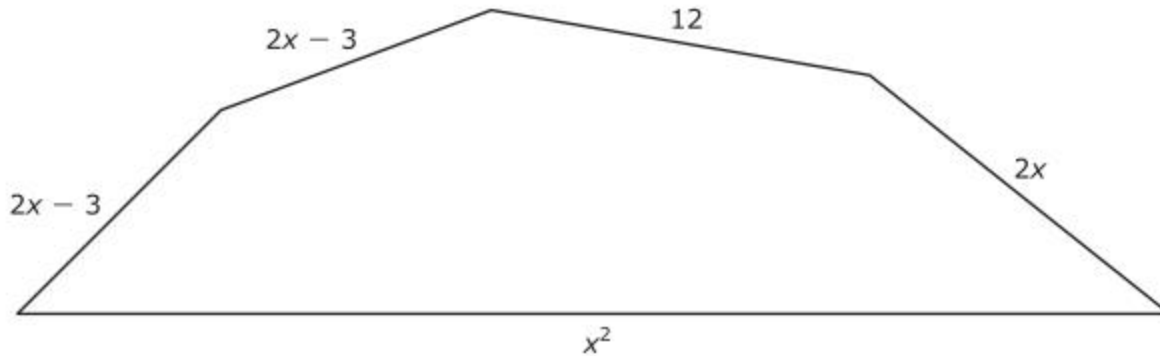
Teacher: _____

Readiness: A.4.A: Find specific function values, simplify polynomial expressions, transform and solve equations and factor as necessary in problem solving.

1. In the quadratic equation $x^2 - x + c = 0$, c represents an unknown constant. If $x = -3$ is one of the solutions to this equation, what is the value of c ?

Record your answer and fill in the bubbles on your answer document.

2. The side lengths of the figure below are given in centimeters.



If the perimeter of this figure is 78 cm, what is the value of x ?

- F -12
- G -6
- H 6
- J 12

Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

Teacher: _____

Readiness: A.4.A: Find specific function values, simplify polynomial expressions, transform and solve equations and factor as necessary in problem solving.

3. Which inequality is equivalent to $-3x + 2y > 5y + 9$?

A $y > x + 3$

B $y > -x - 3$

C $y < x - 3$

D $y < -x - 3$

4. If $f(x) = \frac{2}{3}x^2 + 8x$, what is the value of $f(6)$?

Record your answer and fill in the bubbles on your answer document.

5. The perimeter of a rectangle is 42 centimeters. The length of the rectangle can be represented by $(x + 4)$, and its width can be represented by $(2x - 7)$. What are the dimensions of this rectangle in centimeters?

A Length = 10 and width = 11

B Length = 8 and width = 13

C Length = 6 and width = 15

D Length = 12 and width = 9

Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

Teacher: _____

Readiness: A.4.A: Find specific function values, simplify polynomial expressions, transform and solve equations and factor as necessary in problem solving.

6. Which inequality is equivalent to $7x - 2y > 8$?

F $y > \frac{7}{2}x + 8$

G $y > -\frac{2}{7}x + \frac{8}{7}$

H $y < \frac{7}{2}x - 4$

J $y < -\frac{2}{7}x - \frac{4}{7}$

7. Which expression is equivalent to $-6x^2 - 11x - 4$?

A $(3x + 7)(3x - 3)$

B $(-3x + 4)(2x - 1)$

C $(3x - 7)(3x + 3)$

D $(-3x - 4)(2x + 1)$

Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

Teacher: _____

Supporting: A.4.B: Use the commutative, associative, and distributive properties to simplify algebraic expressions.

8. Which expression is equivalent to $3c\left(\frac{1}{3}d - 9\right) - 7(c + 1) + d(c + 4)$?

F $2cd - 34c + 4d - 7$

G $2cd - 7c - 4$

H $2cd + 34c + 4d + 7$

J $2cd + 8c + 4$

9. In which step below does a mistake first appear in simplifying the expression $0.5(-12c + 6) - 3(c + 4) + 10(c - 5)$?

Step 1: $-6c + 3 - 3(c + 4) + 10(c - 5)$

Step 2: $-6c + 3 - 3c - 12 + 10(c - 5)$

Step 3: $-6c + 3 - 3c - 12 + 10c - 50$

Step 4: $7c - 41$

A Step 1

B Step 2

C Step 3

D Step 4

Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

Teacher: _____

Readiness: A.7.B: Investigate methods for solving linear equations and inequalities using concrete models, graphs, and the properties of equality, select a method, and solve the equations and inequalities.

- 10.** A student bought concert tickets online. The total cost, c , in dollars, of t tickets can be found using the function below.

$$c = 24.50t + 9.50$$

If the student spent a total of \$83 on tickets, how many tickets did he buy?

Record your answer and fill in the bubbles on your answer document.

- 11.** Which of the following describes all the solutions to the inequality $5x + 7y \geq 22$ when $y = -4$?

- A** $x \leq 10$
- B** $x \leq -10$
- C** $x \geq 10$
- D** $x \geq -10$

- 12.** The approximate distance in miles between Los Angeles and a commercial jet flying from Boston to Los Angeles can be found using the function $m = -475t + 2,650$, where t is the number of hours the jet has been flying. Which number of hours and minutes is closest to the amount of time that the jet has been flying if the jet is 1,500 miles from Los Angeles?

- F** 2 hours and 25 minutes
- G** 8 hours and 44 minutes
- H** 3 hours and 16 minutes
- J** 9 hours and 13 minutes

Algebra I EOC Review

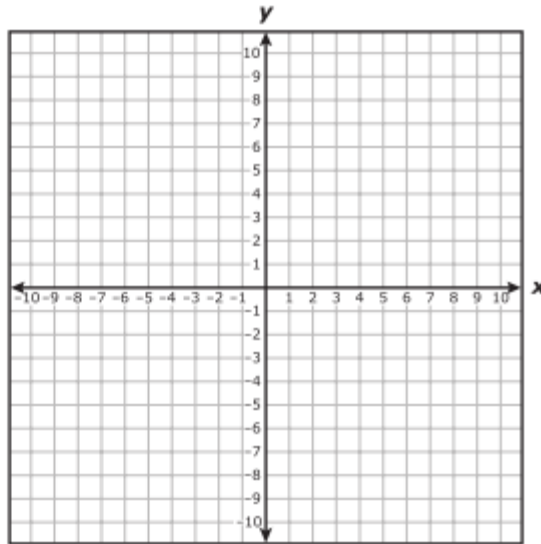
Part 8ô Simplify and Solve Linear Equations

Name: _____

Teacher: _____

Readiness: A.7.B: Investigate methods for solving linear equations and inequalities using concrete models, graphs, and the properties of equality, select a method, and solve the equations and inequalities.

- 13.** Which coordinate pair is in the solution set for $y < 1 - 6x$?



- A** (1, 0)
- B** (1, -1)
- C** (0, 1)
- D** (-1, 1)
- 14.** A painter charges \$35 per hour for labor plus \$40 for a ladder rental when he paints a house. The customer provides the paint. The total charge to paint a customer's house was \$950. How many hours did the painter spend painting this house?
- F** $12\frac{2}{3}$ h
- G** 28 h
- H** 23 h
- J** Not here

Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

Teacher: _____

Readiness: A.7.B: Investigate methods for solving linear equations and inequalities using concrete models, graphs, and the properties of equality, select a method, and solve the equations and inequalities.

15. If $y = -\frac{4}{5}x - 2$, what is the value of x when $y = -9$?

A $-\frac{35}{4}$

B $-\frac{55}{4}$

C $\frac{35}{4}$

D $\frac{55}{4}$

Supporting: A.7.C: Interpret and determine the reasonableness of solutions to linear equations and inequalities.

16. The measure of an obtuse angle is represented by $(9x + 27)^\circ$. Which is not a possible value for x ?

F 7.1

G 12.3

H 16.9

J 6.8

17. The average annual rainfall for a particular city is 33.2 inches. In the first 30 weeks of this year, the city received a total of 9.7 inches of rain. If it is expected to rain between 1.5 and 2.1 inches per week through the end of the year, what is a reasonable number of additional weeks needed for this city to reach its average annual rainfall?

A 23 weeks

B 13 weeks

C 9 weeks

D 16 weeks

Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

Teacher: _____

Readiness: A.8.B: Solve systems of linear equation using concrete models, graphs, tables, and algebraic methods.

18. Some values for two linear equations are shown in the tables below.

Equation 1

x	y
2	5
-4	-7
5	11
-1	-1

Equation 2

x	y
5	11
-3	-13
0	-4
1	-1

What is the solution to the system of equations represented by these tables?

- F** (2, 3)
- G** (3, 5)
- H** (-1, 1)
- J** (5, 11)

19. What is the value of x in the solution to the system of equations below?

$$15x - 12y = 13$$

$$30x + 9y = 4$$

- A** $-\frac{17}{3}$
- B** $\frac{1}{3}$
- C** $-\frac{2}{3}$
- D** $\frac{1}{6}$

Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

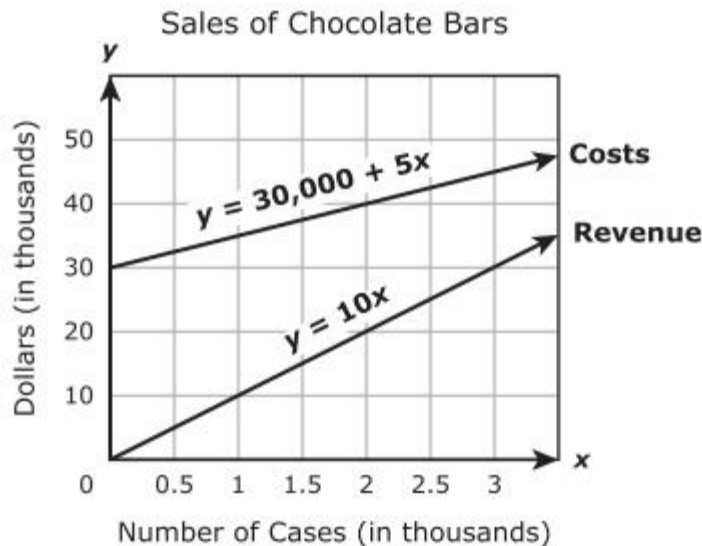
Teacher: _____

Readiness: A.8.B: Solve systems of linear equation using concrete models, graphs, tables, and algebraic methods.

20. There are 156 laptops and desktop computers in a lab. There are 8 more laptops than desktop computers. What is the total number of laptops in the lab?

Record your answer and fill in the bubbles on your answer document.

21. A candy company sells cases of chocolate bars. The company has fixed costs of \$30,000, and each case of chocolate bars costs an additional \$5 to make. The company sells each case for \$10. The graph of a system of linear equations representing this company's costs and revenue for manufacturing and selling x cases of chocolate bars is shown below.



How many cases of chocolate bars will this company need to sell in order for costs and revenue to be equal?

- A 3,500
- B 6,000
- C 35,000
- D 60,000

Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

Teacher: _____

Readiness: A.8.B: Solve systems of linear equation using concrete models, graphs, tables, and algebraic methods.

22. What is the value of x in the solution to the system of equations below?

$$6x + 3y = 13$$

$$3x - y = 4$$

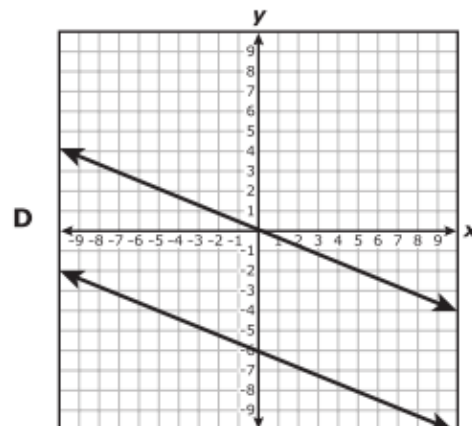
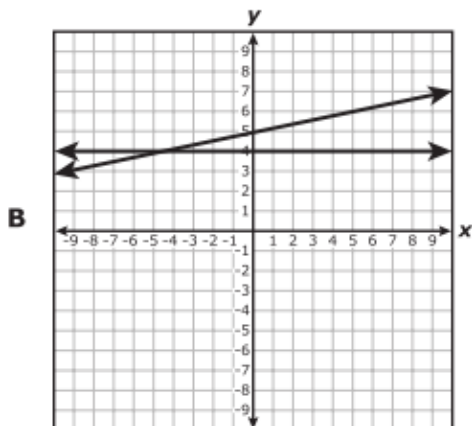
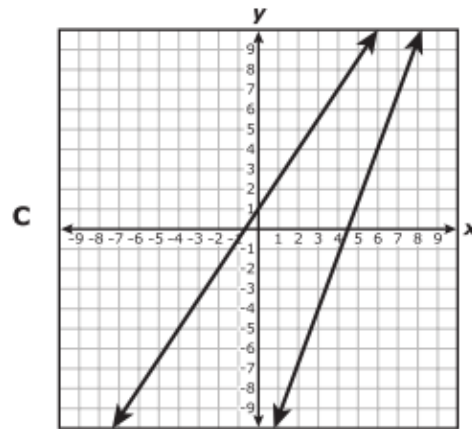
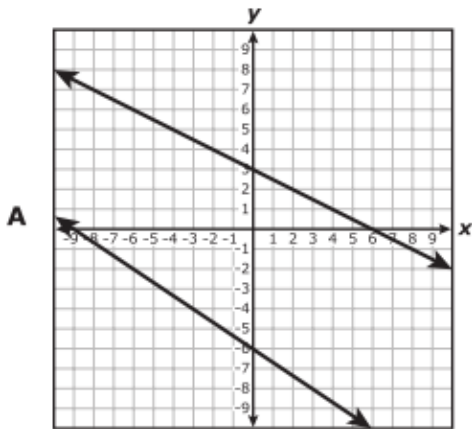
F 1

G $\frac{5}{3}$

H $\frac{8}{3}$

J $\frac{7}{3}$

23. Which of the following graphs best represents a system of equations that has no solution?



Algebra I EOC Review

Part 8ô Simplify and Solve Linear Equations

Name: _____

Teacher: _____

Readiness: A.8.B: Solve systems of linear equation using concrete models, graphs, tables, and algebraic methods.

24. A high school band held a bake sale. The number of cupcakes sold was four more than twice the number of cookies sold. The band sold a total of 52 cupcakes and cookies. How many cupcakes were sold?

F 28

G 16

H 36

J 24

Supporting: A.8.C: Interpret and determine the reasonableness of solutions to systems of linear equations.

25. The sophomore class needs a combined total of 216 medium and large T-shirts for field day. The number of medium T-shirts needed is three times the number of large T-shirts needed. Based on this information, would it be reasonable for the sophomore class to order 72 large T-shirts and 144 medium T-shirts?

A No, because the number of medium T-shirts is not 3 times the number of large T-shirts

B No, because the number of large T-shirts is not 3 times the number of medium T-shirts

C Yes, because the total number of T-shirts is 216

D Yes, because the number of large T-shirts is $\frac{1}{3}$ of the total number of T-shirts

26. A boy has 380 prize tickets he wants to exchange for action figures at a prize booth. At this prize booth 5 tickets can be exchanged for a large action figure, and 7 tickets can be exchanged for 2 small action figures. The boy wants 4 times as many small action figures as large action figures. Based on this information, can the boy get 80 small action figures?

F No, because he would not have enough tickets for 20 large action figures

G Yes, because he would still have enough tickets for 320 large action figures

H No, because he would not have enough tickets for 320 large action figures

J Yes, because he would still have enough tickets for 20 large action figures

Algebra I EOC Review

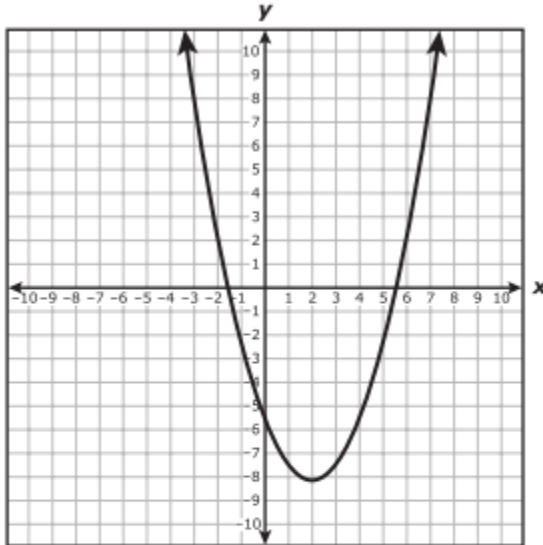
Part 96 Simplify and Solve Non-Linear Equations

Name: _____

Teacher: _____

Readiness: A.10.A: Solve quadratic equations using concrete models, tables, graphs, and algebraic methods.

1. The graph of a quadratic function is shown below.



What is the best estimate of the positive value of x for which this function equals 8?

- A 2
 - B 4
 - C 13
 - D 7
2. What are the solutions to the equation $x^2 - 4x = -1$?

F $x = \frac{-4 \pm \sqrt{20}}{2}$

G $x = \frac{4 \pm \sqrt{12}}{2}$

H $x = \frac{-4 \pm \sqrt{12}}{2}$

J $x = \frac{4 \pm \sqrt{20}}{2}$

Algebra I EOC Review

Name: _____

Part 96 Simplify and Solve Non-Linear Equations

Teacher: _____

Readiness: A.10.A: Solve quadratic equations using concrete models, tables, graphs, and algebraic methods.

3. Which statement about the quadratic equation below is true?

$$-4.5x^2 + 72 = 0$$

- F The equation has $x = 4$ as its only solution.
 - G The equation has no real solutions.
 - H The equation has $x = 4$ and $x = -4$ as its only solutions.
 - J The equation has an infinite number of solutions.
4. The table of values for quadratic function g is shown below.

x	$g(x)$
-3	48
-2	30
-1	16
0	6
2	-2
3	0
4	6
6	30

If 1 is a solution to $g(x) = 0$, what is the other solution?

- A -1
 - B 3
 - C 6
 - D -2
5. What is the solution set for the quadratic equation $x^2 - 16 = 0$?
- A {4}
 - B {-4, 4}
 - C {256}
 - D {-256, 256}

Algebra I EOC Review

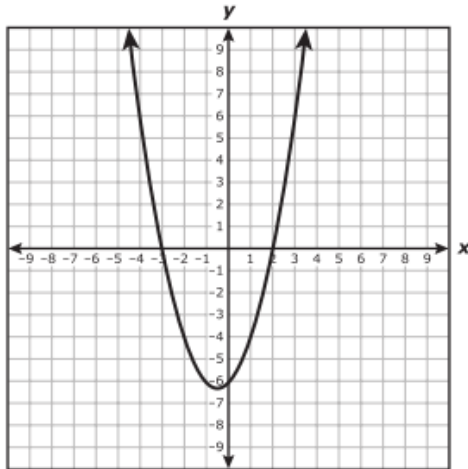
Part 96 Simplify and Solve Non-Linear Equations

Name: _____

Teacher: _____

Readiness: A.10.A: Solve quadratic equations using concrete models, tables, graphs, and algebraic methods.

6. The function $y = x^2 + x - 6$ is graphed below.



What are the values of x when $x^2 + x - 6 = -4$?

- F $x = -4$ and $x = 6$
- G $x = -2$ and $x = 1$
- H $x = -3$ and $x = 2$
- J $x = -5$ and $x = -6$

7. A table of values for the quadratic function f is shown below.

x	$f(x)$
-8	-2.75
-7	0
-6	2.25
-5	4
-4	5.25
-3	6
-2	6.25
-1	6
0	5.25
1	4

If 3 is one solution to $f(x) = 0$, what is the value of the other solution?

Record your answer and fill in the bubbles on your answer document.

Algebra I EOC Review

Name: _____

Part 96 Simplify and Solve Non-Linear Equations

Teacher: _____

Supporting: A.10.B: Make connections among the solutions (roots) of quadratic equations, the zeros of their related functions, and the horizontal intercepts (x-intercepts) of the graph of the function.

8. What are the x-intercepts of the graph of the quadratic function $f(x) = 5x^2 + 4x - 1$?

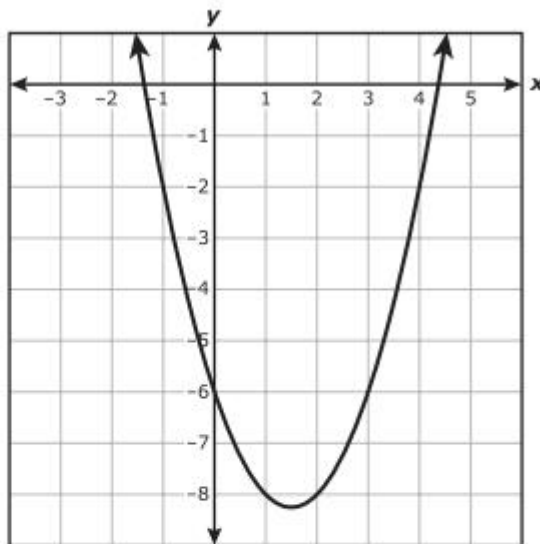
F $\frac{1}{5}$ and -1

G $-\frac{1}{5}$ and 1

H 0 and -1

J $-\frac{2}{5}$ and $1\frac{2}{5}$

9. The graph of quadratic function g is shown below.



Based on the graph, between which two values of x is a zero of g located?

A -9 and -8

B 1 and 2

C -7 and -5

D 4 and 5

Algebra I EOC Review

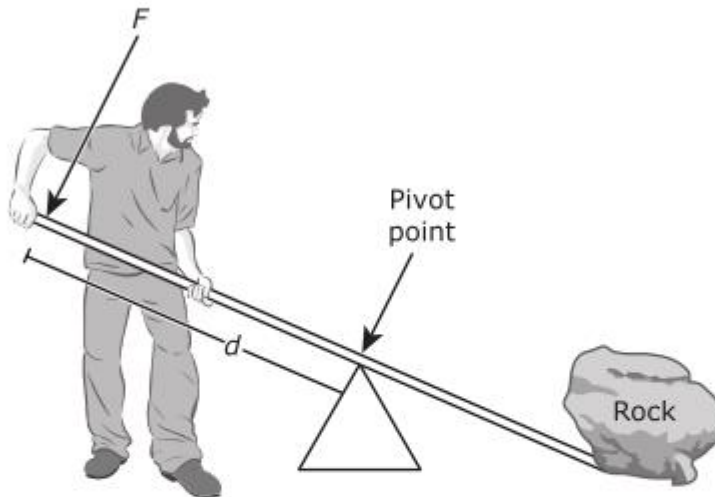
Part 96 Simplify and Solve Non-Linear Equations

Name: _____

Teacher: _____

Supporting: A.11.B: Analyze data and represent situations involving inverse variation using concrete models, tables, graphs, or algebraic methods.

- 10.** A farmer uses a lever to move a large rock. The force required to move the rock varies inversely with the distance from the pivot point to the point the force is applied. A force of 50 pounds applied to the lever 36 inches from the pivot point of the lever will move the rock. Which function models the relationship between F , the amount of force applied to the lever, and d , the distance of the applied force from the pivot point?



F $d = \frac{F}{1,800}$

G $d = \frac{86}{F}$

H $F = \frac{1,800}{d}$

J $F = \frac{d}{86}$