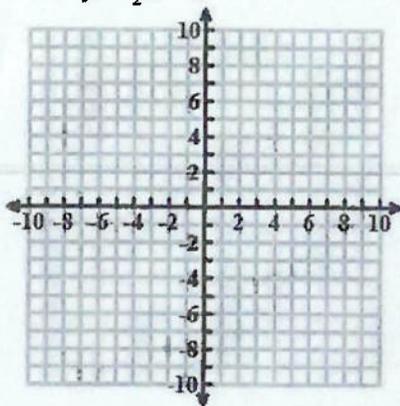


Lesson 3.1 ~ Graphing Using Slope-Intercept Form

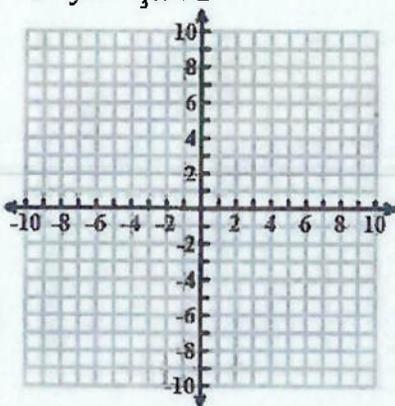
Name _____ Period _____ Score _____
Date _____

Graph each equation. Clearly mark at least three points on each line.

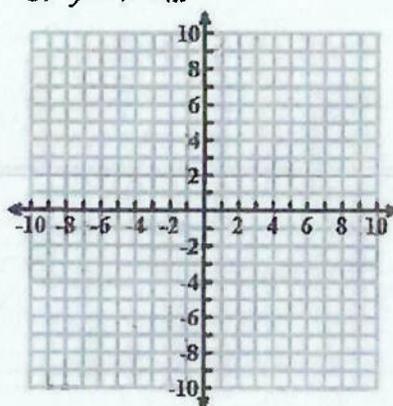
1. $y = \frac{1}{2}x - 5$



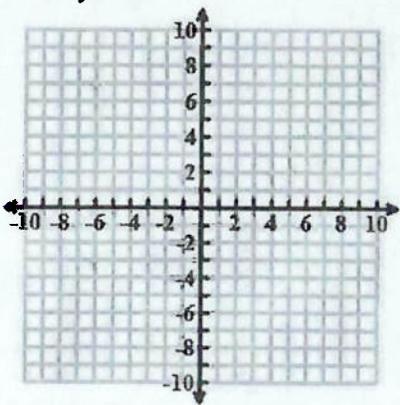
2. $y = -\frac{1}{3}x + 2$



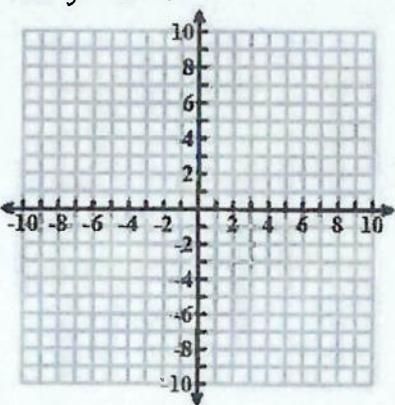
3. $y = 7 - 4x$



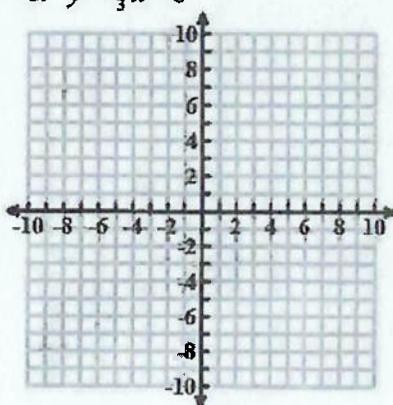
4. $y = 6$



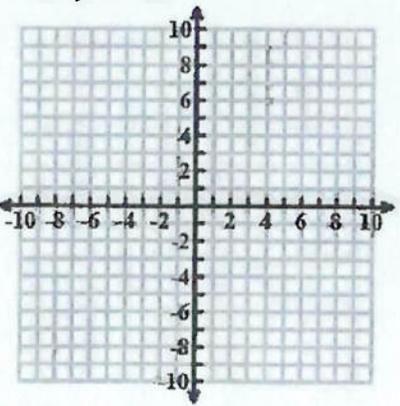
5. $y = x - 4$



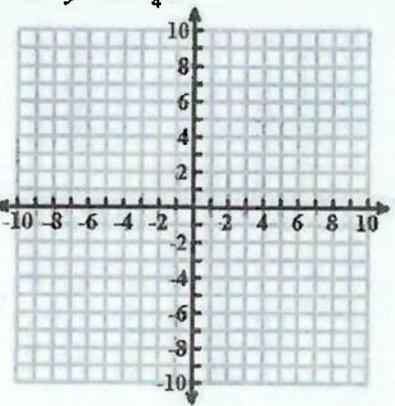
6. $y = \frac{2}{3}x - 8$



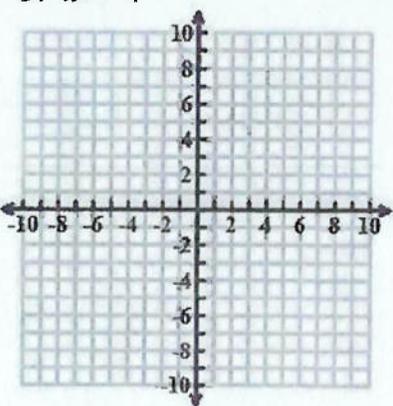
7. $y = -2x$



8. $y = 1 + \frac{1}{4}x$



9. $x = -4$



10. Using a separate sheet of graph paper, graph the following three equations on the same coordinate plane. Describe any similarities and differences you observe.

$y = \frac{1}{2}x - 3$

$y = \frac{1}{2}x$

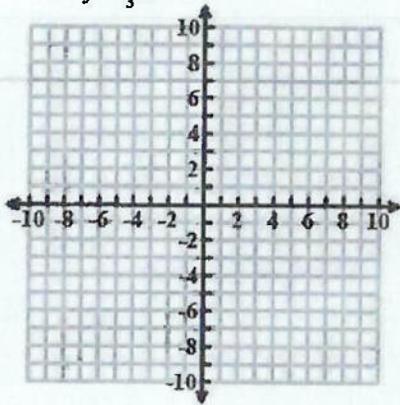
$y = \frac{1}{2}x + 2$

Lesson 3.1C ~ Graphing Using Slope-Intercept Form

Name _____ Period _____ Date _____

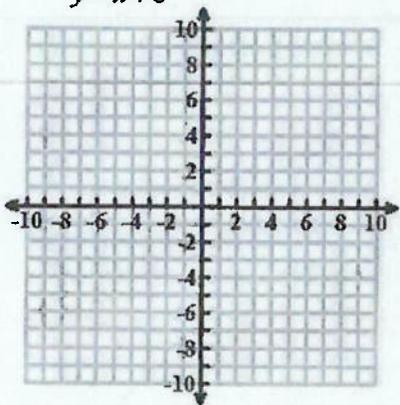
Graph each set of equations on the same coordinate plane. Determine the point where the lines intersect.

1. $y = 2x - 5$
 $y = \frac{1}{3}x + 5$



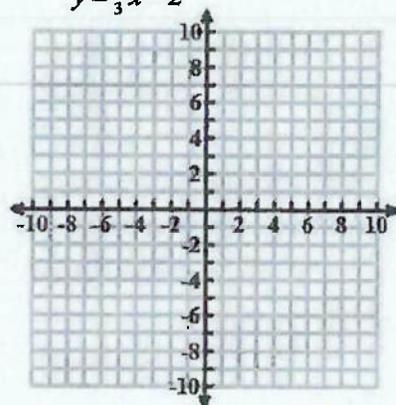
Intersection Point: _____

2. $y = -\frac{3}{4}x + 1$
 $y = x + 8$



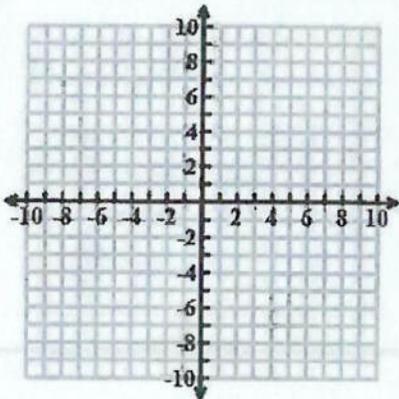
Intersection Point: _____

3. $y = 8 - 3x$
 $y = \frac{1}{3}x - 2$



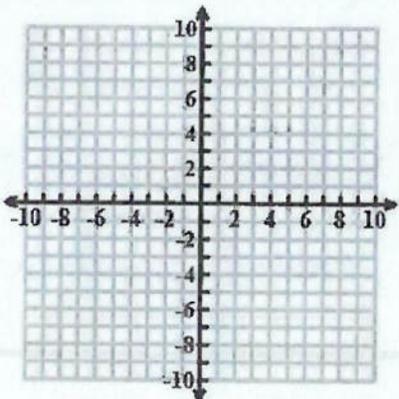
Intersection Point: _____

4. $y = -\frac{1}{2}x + 2$
 $y = \frac{4}{3}x - 9$
 $y = \frac{1}{2}x - 4$



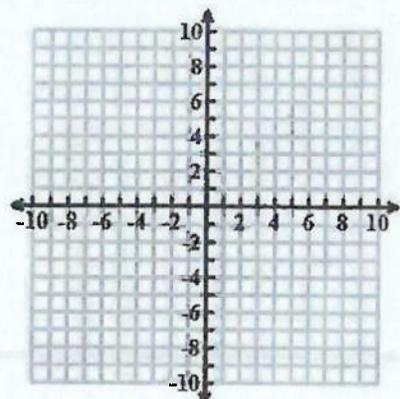
Intersection Point: _____

5. $y = 3x - 4$
 $y = 2x - 5$
 $y = -x - 8$



Intersection Point: _____

6. $y = 2 + 2x$
 $y = \frac{3}{2}x$
 $y = -6$



Intersection Point: _____

7. Why would it be difficult to find the intersection point of a set of equations if the coordinate pairs were not integers?

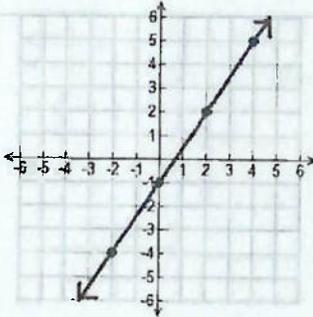
Lesson 3.2 ~ Writing Slope-Intercept Equations for Graphs

Name _____ Period _____ Score _____ Date _____

Determine the slope and y -intercept for each graph. Write the equation for the graph in slope-intercept form.

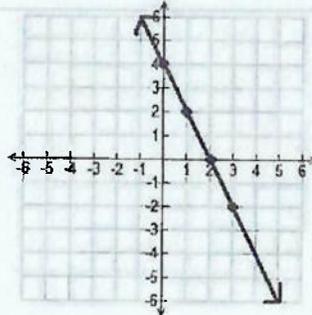
1.

slope	
y -intercept	
equation	



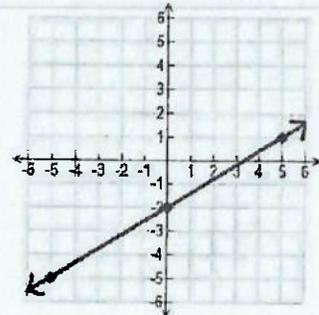
2.

slope	
y -intercept	
equation	



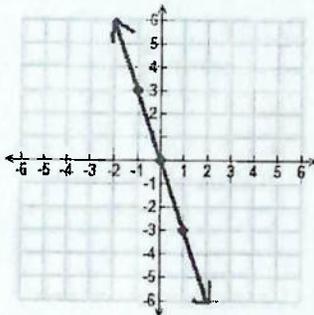
3.

slope	
y -intercept	
equation	



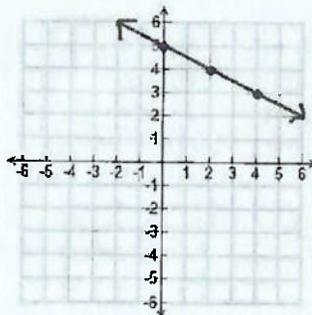
4.

slope	
y -intercept	
equation	



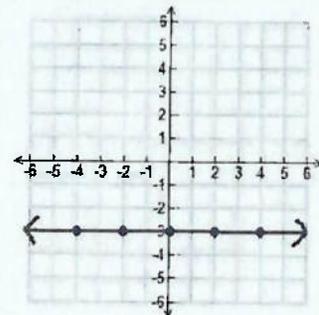
5.

slope	
y -intercept	
equation	



6.

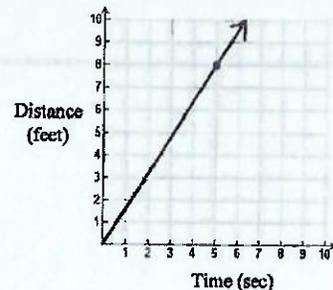
slope	
y -intercept	
equation	



7. The graph to the right represents the distance (y) Kirk has walked after x seconds.

a. What is the slope-intercept equation for the graph?

b. Predict how far Kirk will have walked after 72 seconds.

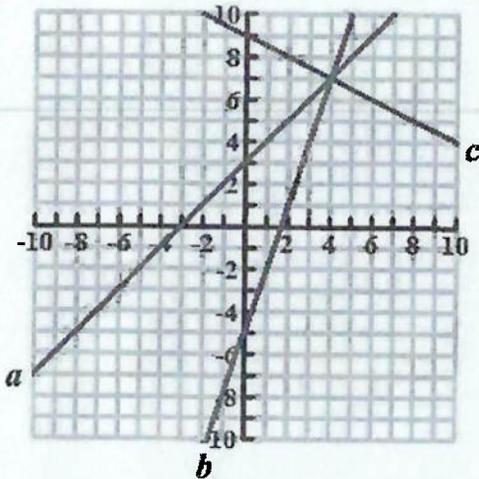


Lesson 3.2C ~ Writing Slope-Intercept Equations for Graphs

Name _____ Period _____ Date _____

Three lines are given on each graph that intersect at one point. Find the slope-intercept equation of each line. Graph and write an equation for one additional line that intersects at the same point. Vertical and horizontal lines are not permitted.

1.



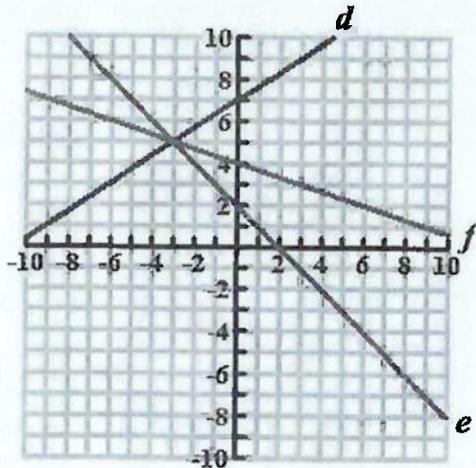
Equation of Line *a*: _____

Equation of Line *b*: _____

Equation of Line *c*: _____

Equation of New Line: _____

2.



Equation of Line *d*: _____

Equation of Line *e*: _____

Equation of Line *f*: _____

Equation of New Line: _____

3. Write the slope-intercept equations of three lines that all intersect at a point in Quadrant 3.

Lesson 3.3 ~ Writing Linear Equations from Key Information

Name _____ Period _____ ^{Score}
Date _____

Write an equation in slope-intercept form when given two pieces of key information about the line.

1. slope = 3, y-intercept = -1 _____

2. slope = $-\frac{1}{3}$, y-intercept = 4 _____

3. slope = 5, goes through the point (2, 7) _____

4. slope = 0, goes through the point (-3, 3) _____

5. slope = $\frac{3}{4}$, goes through the point (0, 6) _____

6. goes through the points (6, 2) and (5, 4) _____

7. goes through the points (0, 4) and (2, 7) _____

8. goes through the points (-3, 2) and (8, 2) _____

9. goes through the points (-6, 1) and (-3, 2) _____

10. y-intercept = 4, goes through the point (2, 3) _____

11. y-intercept = -1, goes through the point (3, 8) _____

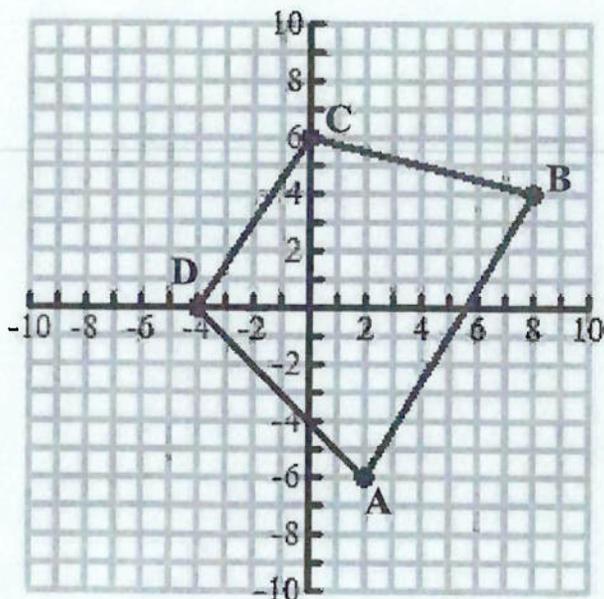
12. goes through the points (1, 11) and (1, -2) _____

Lesson 3.3C ~ Writing Linear Equations from Key Information

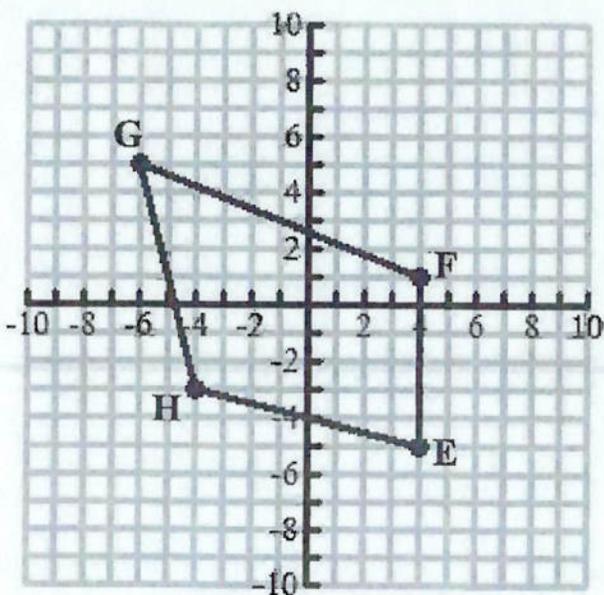
Name _____ Period _____ Date _____

Write the slope-intercept equations for the lines that form each side of the quadrilaterals below. Label each line with the line segment it corresponds to (i.e. \overline{JK} : $y = 2x - 3$).

1.



2.



Lesson 3.4 ~ Different Forms of Linear Equations

Name _____ Period _____ Score _____
Date _____

Twelve linear equations are given below. They represent only four lines. Put each equation in slope-intercept form to determine which equations are equivalent (represent the same line).

1. $y = 2 + 3(x - 1)$

2. $-3x + 6y = 24$

3. $y = -\frac{1}{2}(4x - 10) - 2$

4. $y = -2(x + 4) + 11$

5. $y = \frac{1}{2}(x + 6) + 1$

6. $9x - 3y = 3$

7. $3x + 12y = 12$

8. $y = \frac{1}{2}(6x + 2) - 2$

9. $y = 2 - \frac{1}{4}(x + 4)$

10. $2x - 4y = -16$

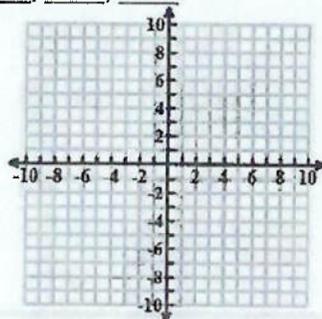
11. $8x + 4y = 12$

12. $y = -\frac{1}{4}(x + 12) + 4$

List the four slope-intercept equations from above in any order. Write the problem numbers that correspond to each equation. Graph each line.

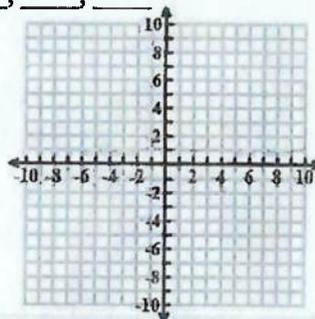
I. Slope-Intercept Equation: _____

#s: _____, _____, _____



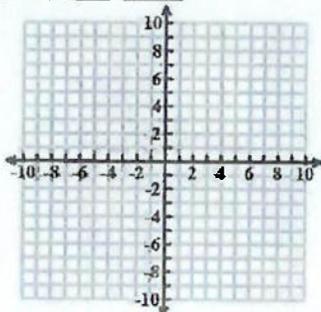
II. Slope-Intercept Equation: _____

#s: _____, _____, _____



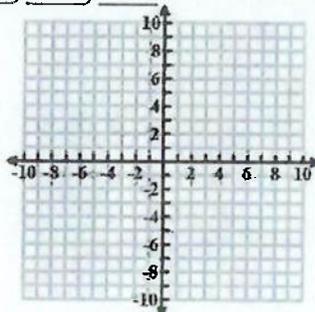
III. Slope-Intercept Equation: _____

#s: _____, _____, _____



IV. Slope-Intercept Equation: _____

#s: _____, _____, _____



Lesson 3.4C ~ Different Forms of Linear Equations

Name _____ Period _____ Date _____

STANDARD FORM: $Ax + By = C$ where A and B are not both zero.

POINT-SLOPE FORM: $y = m(x - x_1) + y_1$ where m represents the slope and (x_1, y_1) is a point on the line.

Find an equation in standard form that creates the same line as the slope-intercept equation given. The A and B values should be integers.

1. $y = 3x + 1$

2. $y = \frac{1}{2}x - 2$

3. $y = -\frac{2}{3}x + 5$

4. $y = -\frac{7}{5}x + 4$

5. $y = \frac{2}{2}x - 1$

6. $y = \frac{3}{2}x$

Find an equation in point-slope form that creates the same line as the slope-intercept equation given.

7. $y = 4x - 3$

8. $y = \frac{1}{2}x + 5$

9. $y = -\frac{1}{4}x$

10. $y = -2x + 9$

11. $y = \frac{2}{3}x + 1$

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

Find two equations (one in point-slope form and the other in standard form) that create the same line as the slope-intercept equation given.

13. $y = 3x + 5$

14. $y = -\frac{1}{2}x + 1$

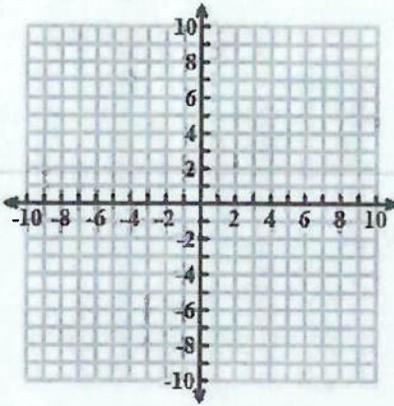
15. $y = \frac{1}{4}x - 2$

Lesson 3.5 ~ More Graphing Linear Equations

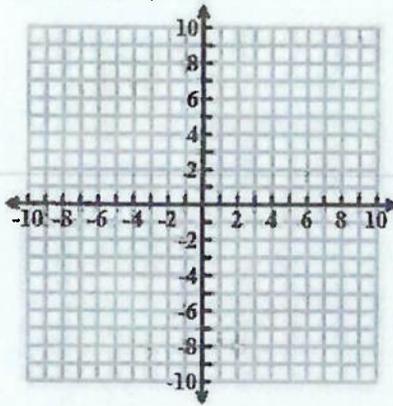
Name _____ Period _____ Score _____
Date _____

Put each equation in slope-intercept form and graph. Clearly mark at least three points on each line.

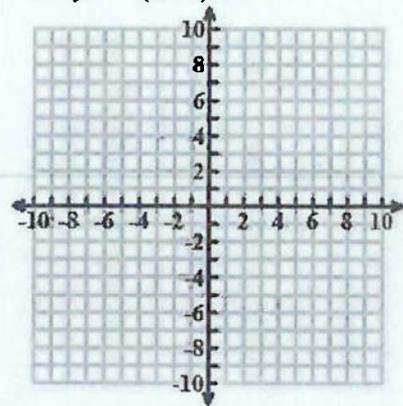
1. $y = 2(x - 3) + 1$



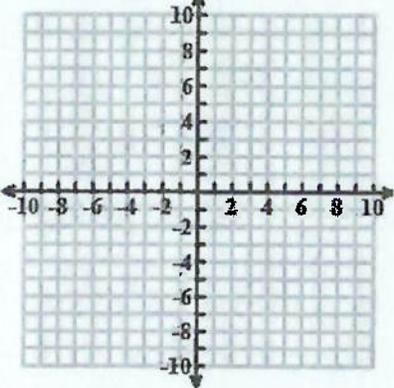
2. $-3x + 4y = 16$



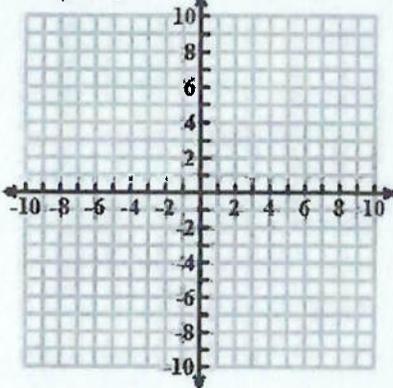
3. $y = -(x + 1) + 6$



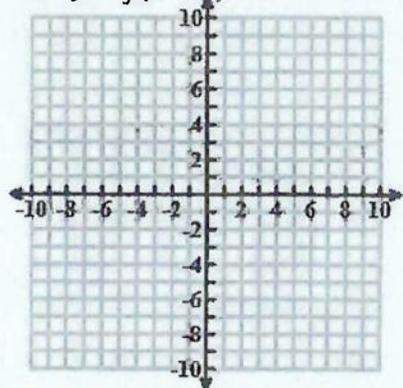
4. $2x + 5y = 15$



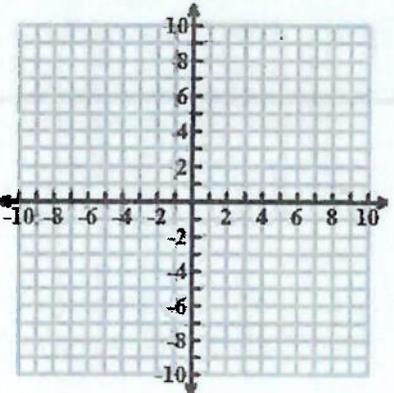
5. $\frac{5}{4}x + y = 7$



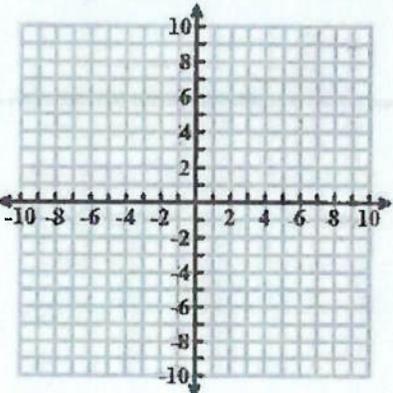
6. $y = \frac{2}{5}(x - 10) + 4$



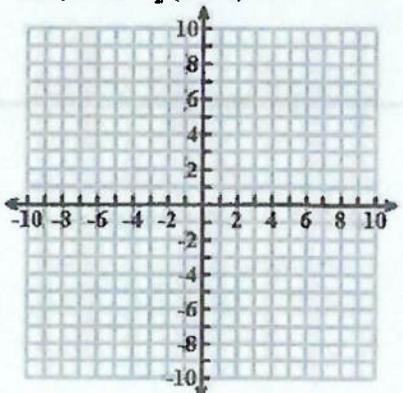
7. $y = -\frac{1}{3}(x - 6) - 1$



8. $9x - 3y = 3$



9. $y = 6 - \frac{1}{2}(x + 4)$

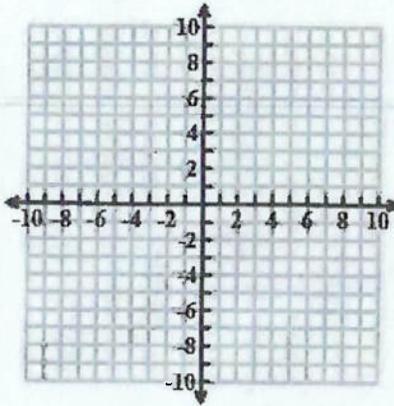


Lesson 3.5C ~ More Graphing Linear Equations

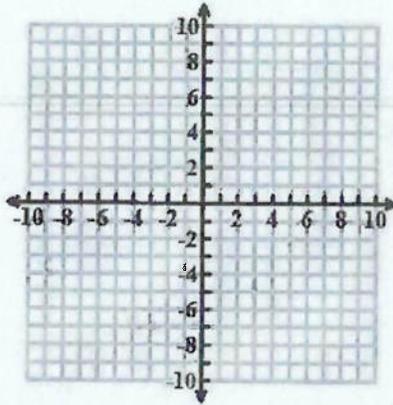
Name _____ Period _____ Date _____

Equations in standard form can be graphed using the intercept method. Find the x - and y -intercepts for each equation. Substitute 0 for x and solve for y to find the y -intercept. Substitute 0 for y and solve for x to find the x -intercept.

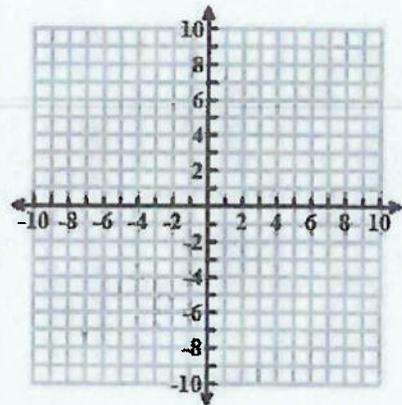
1. $2x + 4y = 8$



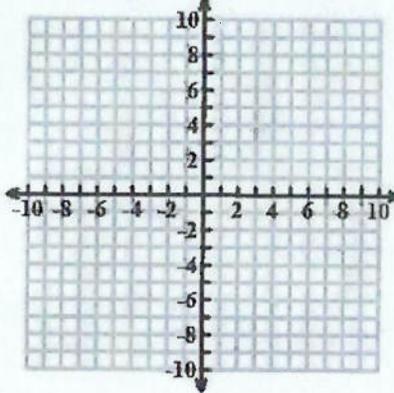
2. $-3x + 5y = 15$



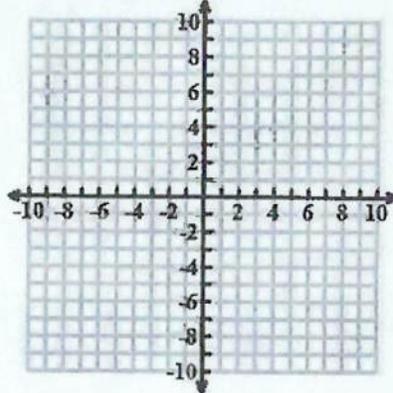
3. $3x - 9y = 9$



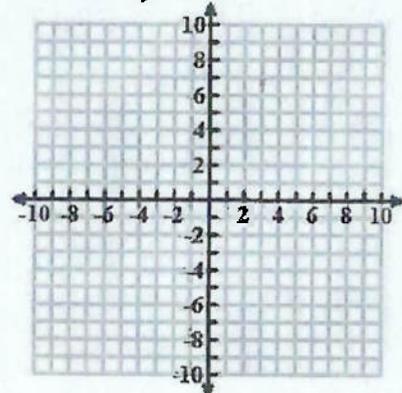
4. $2x + 5y = -10$



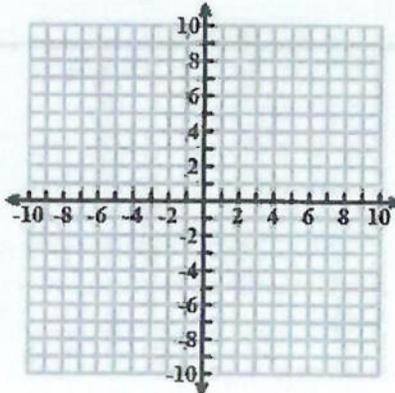
5. $4x - 4y = -20$



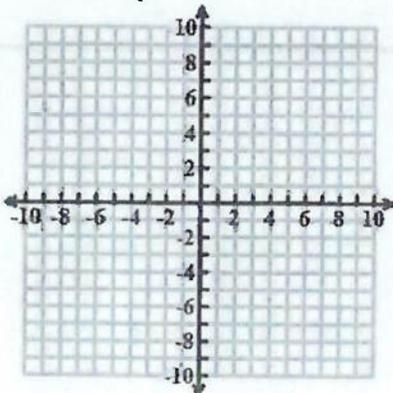
6. $2x + 8y = 16$



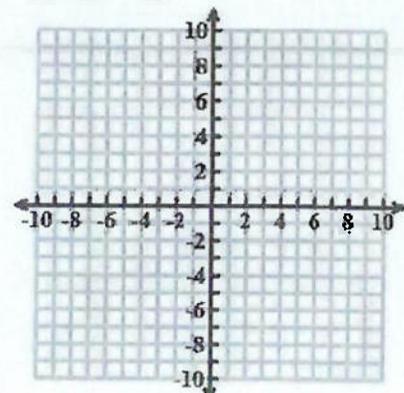
7. $10x + 2y = 20$



8. $2x - 8y = -8$



9. $4x = -12$

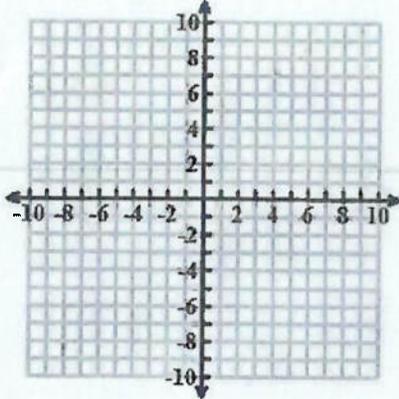


Lesson 3.6 ~ Graphing Linear Inequalities in Two Variables

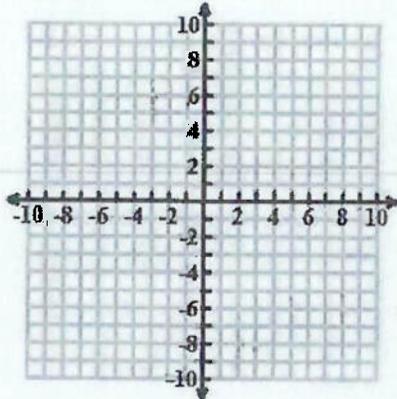
Name _____ Period _____ Score _____
Date _____

Graph each inequality.

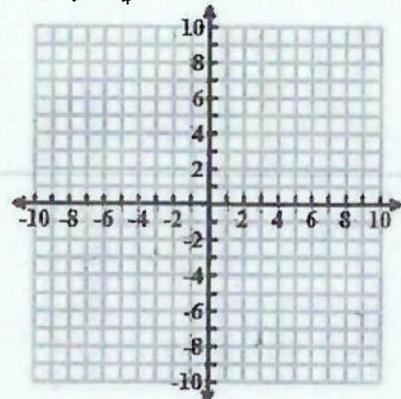
1. $y > \frac{3}{2}x - 4$



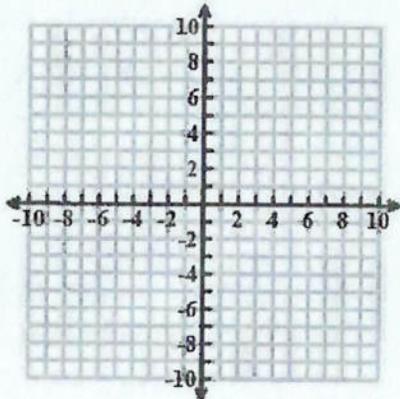
2. $y \leq -2x + 7$



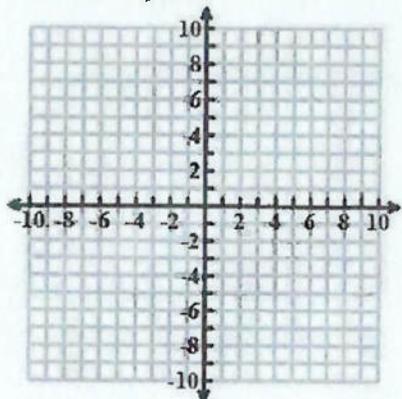
3. $y \geq \frac{5}{4}x$



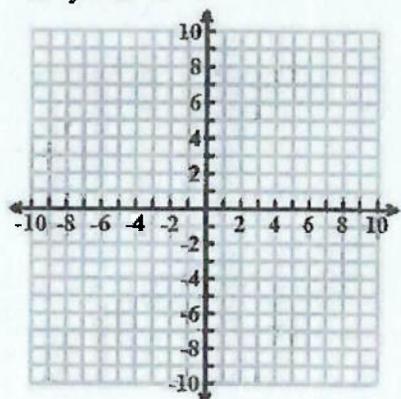
4. $y < 5$



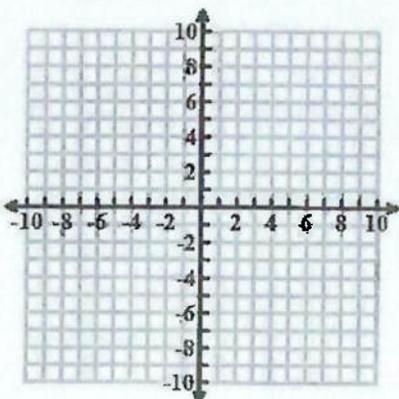
5. $2x + 3y > 6$



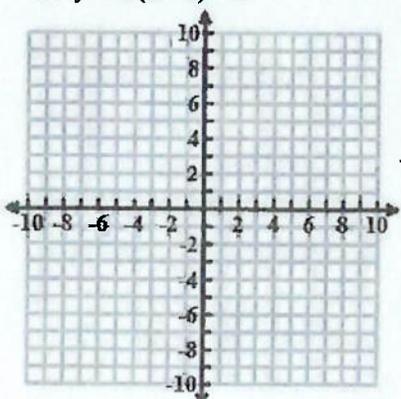
6. $y \geq x - 8$



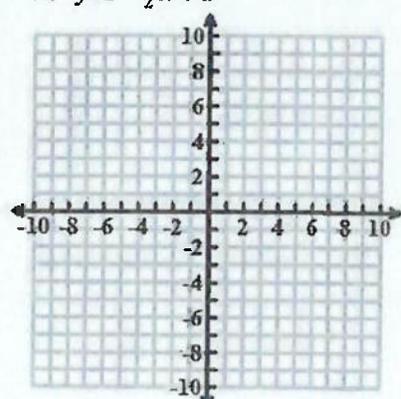
7. $x \leq -2$



8. $y < 3(x - 1) - 2$



9. $y \geq -\frac{1}{2}x + 1$



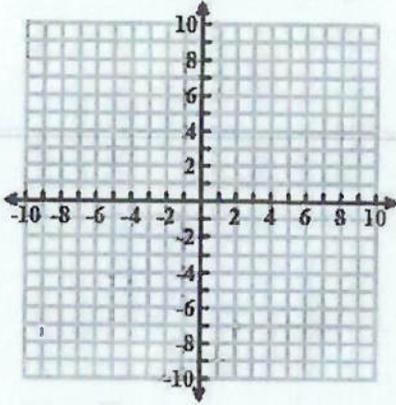
10. How is the graph of a linear inequality different than that of a linear equation?

Lesson 3.6C ~ Graphing Linear Inequalities in Two Variables

Name _____ Period _____ Date _____

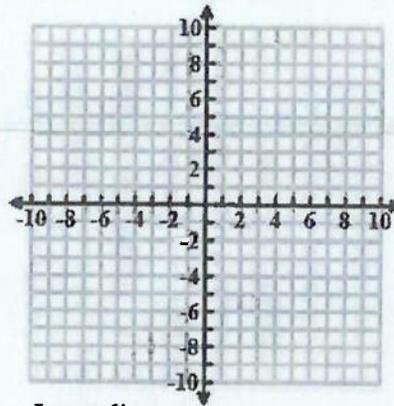
Graph the given points. Write and graph a linear inequality whose solution includes all the given points as solutions.

1. $(2, 3), (4, 6), (8, 10), (-2, 2)$



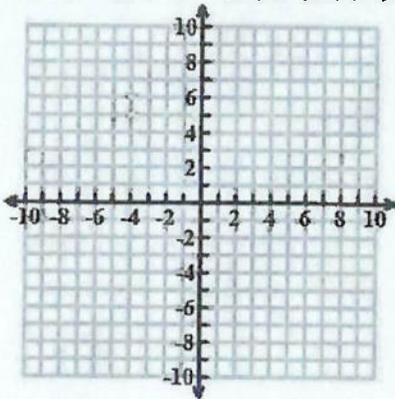
Inequality: _____

2. $(0, -2), (3, -3), (5, -8), (9, -10)$



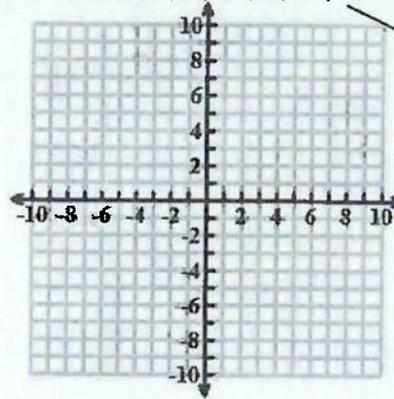
Inequality: _____

3. $(-6, -5), (-2, -1), (0, 0), (2, 2)$



Inequality: _____

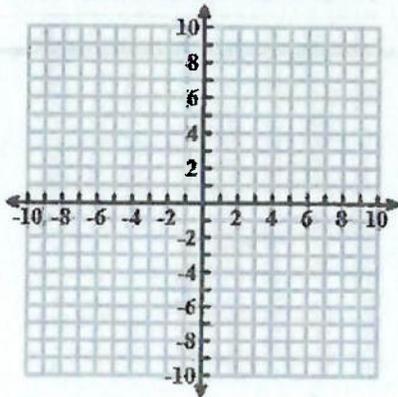
4. $(-3, 5), (0, 8), (2, 6), (5, 8)$



Note: The point $(5, 8)$ must be on the line.

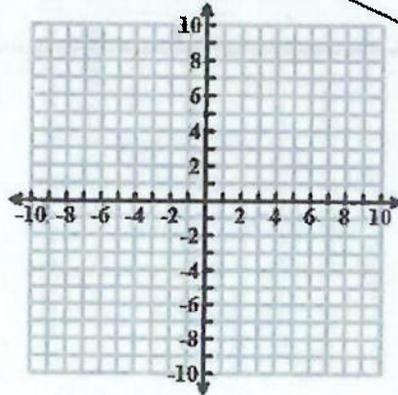
Inequality: _____

5. $(4, 0), (5, 3), (7, -6), (10, -8)$



Inequality: _____

6. $(-4, 6), (-6, 9), (-2, 5)$



Note: The point $(-2, 5)$ must be on the line.

Inequality: _____

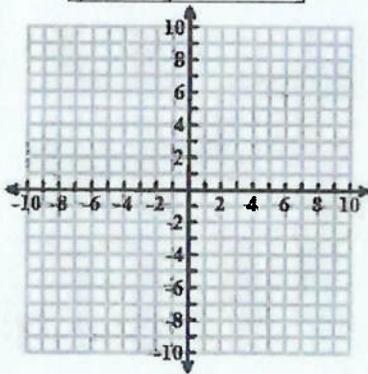
Lesson 3.7 ~ Introduction to Non-Linear Functions

Name _____ Period _____ Score _____
Date _____

Use the given equation to fill in the missing values in each table. Graph the ordered pairs. Identify the type of function.

1. $y = x^2 - 3$

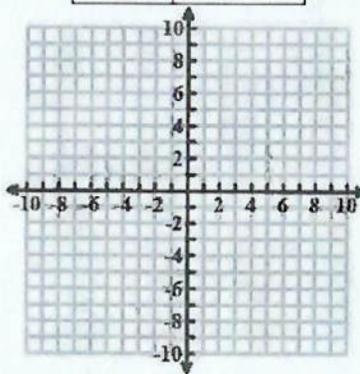
x	y
-2	
-1	
0	
1	
2	



TYPE: _____

2. $y = 2x - 5$

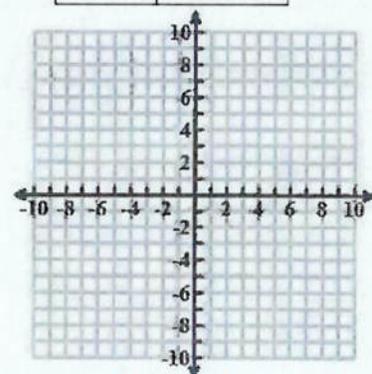
x	y
-2	
-1	
0	
1	
2	



TYPE: _____

3. $y = 2^x$

x	y
-2	
-1	
0	
1	
2	



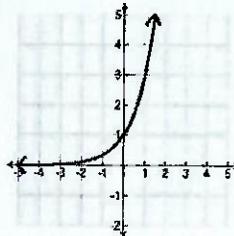
TYPE: _____

Determine if each graph, table or equation is linear or non-linear. If it is non-linear, identify the type of graph (quadratic, exponential or inverse variation).

4.

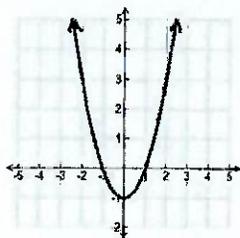
x	y
-2	4
-1	1
0	0
1	1
2	4

5.



6. $y = 7 - 2x$

7.



8. $y = \frac{1}{x}$

9.

x	y
-2	5
-1	8
0	11
1	14
2	17

Lesson 3.7C ~ Introduction to Non-Linear Functions

Name _____ Period _____ Date _____

Functions can be linear, non-linear or a combination of both. Sketch a graph for each situation and label the axes. Write a few sentences explaining each graph.

In your explanations, use terms such as *linear*, *nonlinear*, *continuous*, *discrete*, *increasing*, and *decreasing*. (Look up the terms before starting the activity if you do not know their meanings.)

1. The temperature of water in ice cube trays from the time it is placed in a freezer.



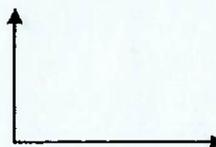
2. The number of cars on the freeway and the level of pollution in the air.



3. The temperature of a kettle of water as it is heated.

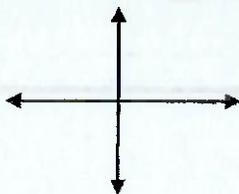


4. The distance from a Ferris-wheel rider to the ground during two revolutions.

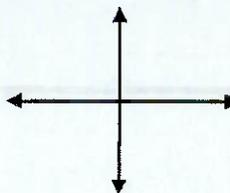


Sketch a graph of a continuous function to fit each description.

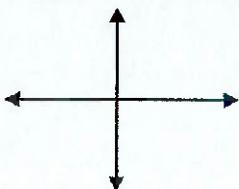
- a. Linear and increasing, then linear and decreasing



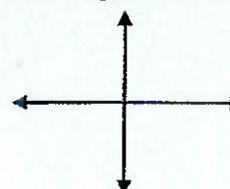
- b. Neither increasing nor decreasing



- c. Increasing but non-linear



- d. Decreasing, discrete



7th Grade Advanced Math

Book 1: Linear Equations

Block 3: Using Linear Equations

Independent Practice

Worksheet Packet

Name: _____

Period: _____