

Algebra 2 Study Guide for S1 Final Exam**1LT1: Simplify and evaluate algebraic expressions (1-3 Pg. 18)**

1.) Evaluate the expression for the given value of the variable.

a.) $5a - 2b$ when $a = 1$ and $b = -2$ b.) $\frac{10(3h-6)}{3+h}$ when $h = 4$

1LT2: Solve equations. (1-4 Pg. 26)

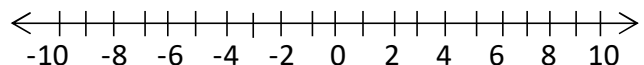
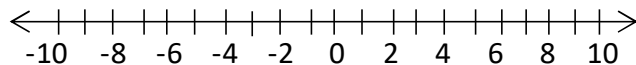
2.) Solve each equation and check the solution:

a.) $5x - 3 = 32$ b.) $x - 15 = 7$ c.) $3(x + 4) = 42$ d.) $4x - 5 = 13 - 2x$

1LT3: Write, Solve, and Graph Inequalities (including compound inequalities). (1-5 Pg. 33)

3.) Solve the inequality and graph the solution set.

a.) $4x + 2 \geq 12$ b.) $-2x + 1 < 11$

**1LT4: Write and solve equations and inequalities involving absolute value (1-6 Pg. 41)**

4.) Give the solution of the absolute value equation:

a.) $|4x + 1| = 15$ b.) $|2x + 7| - 2 = 17$

2LT1: Identify and Evaluate Functions (2-1 Pg. 60)

5.) Evaluate the functions

a.) $f(x) = 5x + 1$, find $f(4)$ b.) $g(x) = -4x^2 + 2x$, find $g(3)$

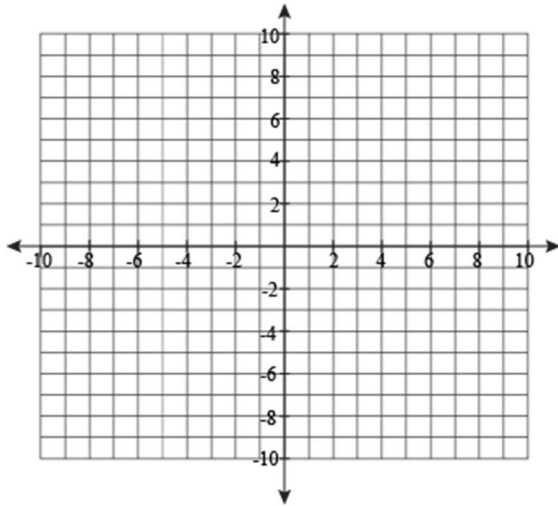
2LT3: Write the equations of lines (2-3 Pg. 74)

6.) Write the equations in slope-intercept form

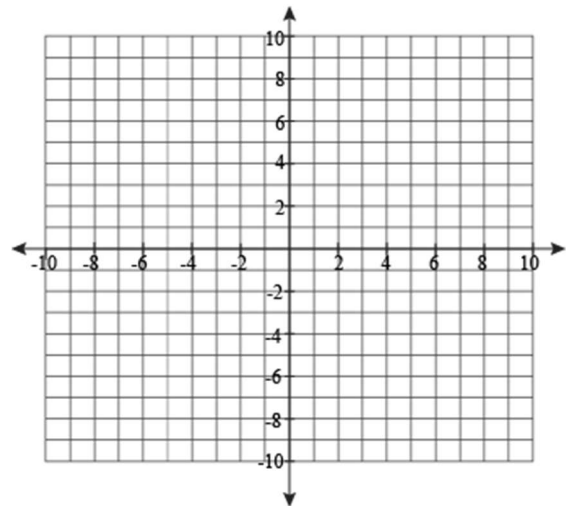
a.) $4x - 6y = -12$ b.) $3x + 5y = 15$

7.) Graph each equation

a.) $y = 3x - 5$



b.) $-2x + 6y = 18$

**2LT4: Write an equation of a line given its slope and a point on the line (2-4 Pg. 81)**

8.) What is the slope of the line that passes through the points:

a.) $(2, 5)$ and $(3, 7)$

b.) $(4, 7)$ and $(6, 11)$

9.) Write the equation in slope-intercept form for a line with the points:

a.) $(3, 10)$ and $(7, -14)$

b.) $(-2, 5)$ and $(1, 11)$

2LT5: Write linear equations from real-world data (2-5 Pg. 92)

10.) Write the function for each scenario

a.) You have \$30, and earn \$9 more each hour.
How much money will you have after 5 hours?b.) There are 3 inches of snow on the ground and 2
more inches falls every hour. How long will it take
for there to be 15 inches of snow on the ground?**2LT6: Analyze transformations of functions (2-6 Pg. 99)**11.) What transformations change the graph of $f(x)$ to the graph of $g(x)$?

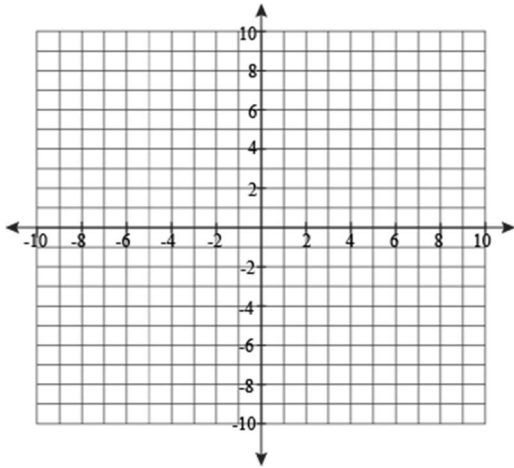
a.) $y = 2x + 5 \rightarrow y = 2x - 1$

b.) $y = -3(x + 1) - 5 \rightarrow y = -3(x - 1) - 3$

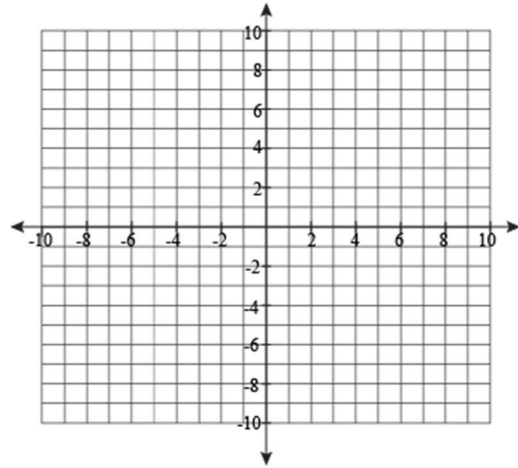
2LT7: Graph absolute value functions (2-7 Pg. 107)

12.) Graph of the absolute value equation

a.) $y = |x + 1| + 4$



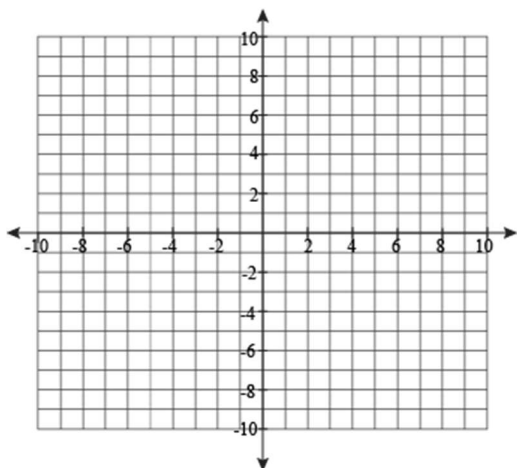
b.) $y = |x - 3| + 2$



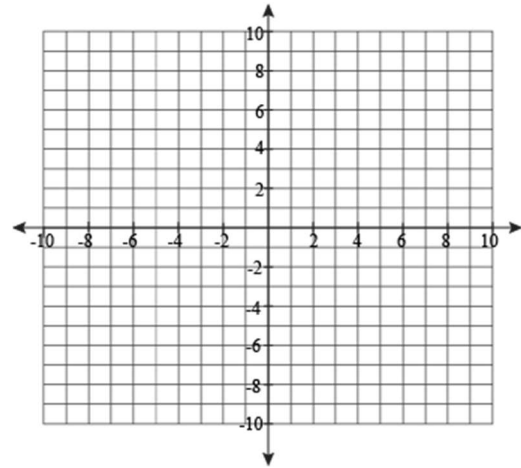
2LT9: Graph two-variable inequalities (2-8 Pg. 114)

13.) Graph the inequality:

a.) $y > \frac{1}{2}x + 3$



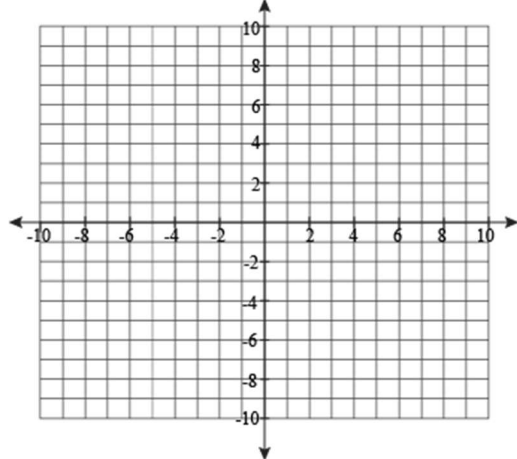
b.) $2x + 3y \leq 12$



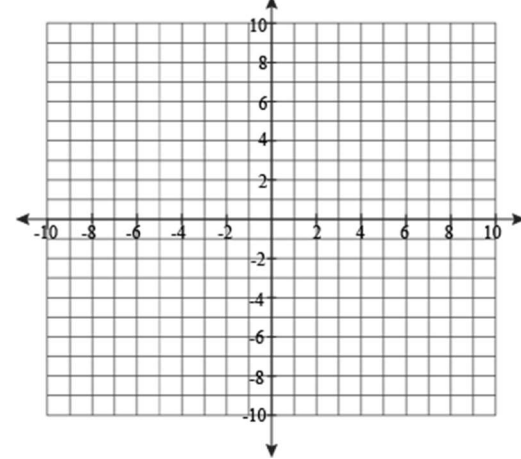
3LT1: Solve a linear system using a graph or table. (3-1 Pg. 134)

14.) Graph each of the lines and give the solution of the linear system.

a.) $y = -2x + 2$ and $6x + 3y = 12$



b.) $4x - 2y = 8$ and $y = 3x + 7$



Solution: _____

Solution: _____

3LT2: Solve linear systems algebraically (3-2 Pg. 142)

15.) Use substitution or elimination to solve each of the linear systems. Show all work.

a.) $y = x + 4$ and $2x + 5y = 6$

b.) $2x - 8y = 16$ and $4x + 8y = -40$

Solution: _____

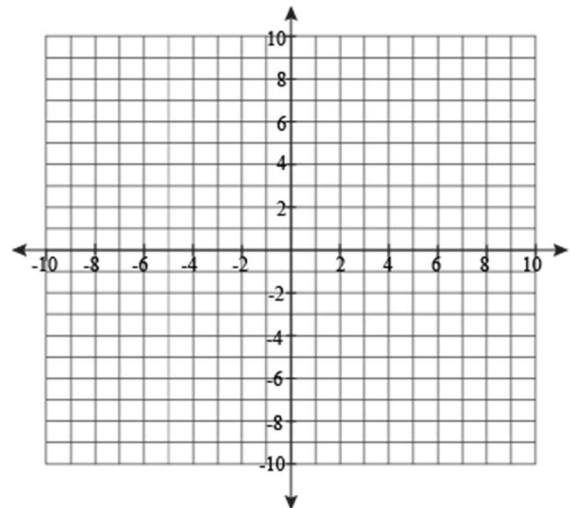
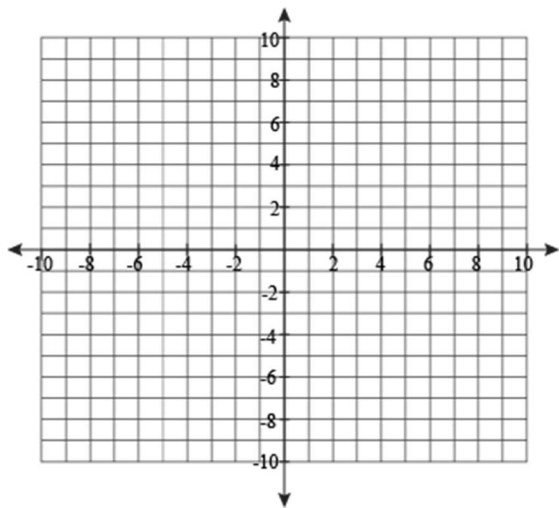
Solution: _____

3LT3: Solve systems of linear inequalities (3-3 Pg. 149)

16.) Use graphing to solve each of the systems of linear inequalities. Shade the solution set on the graph.

a.) $y > 2x$ and $y \leq 3x + 1$

b.) $y \geq 5x - 3$ and $y > -2x + 4$

**3LT4:** Creating and Solving Linear Systems of Equations.

17.) Set up a linear system for each situation below and then solve to answer the question.

a.) Eric has some \$1 bills and \$5 bills in his pocket. He has a total of 15 bills that are worth \$47. How many of each type of bill does he have?

b.) An online bookstore sells books and comic. Each comic sells for \$4, and each book sells for \$2. If James purchased a total of 7 books and comics that have a combined selling price of \$20, how many books did he purchase?