Name _____ Due _____

Review of Algebra

To be successful in Advanced Geometry, you will need a good foundation of Algebra 1. The following Algebra 1 topics are likely to be used again in Geometry this year. Some material from this packet will be included in this course. **This packet will be due the first day of school.** You should have sufficient time to work through these problems at your own pace.
PLEASE **SHOW ALL YOUR WORK** FOR EACH PROBLEM.

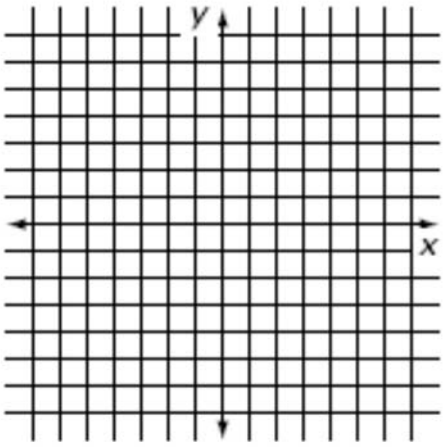
I. Linear Equations, Slopes, and Graphing

The formula for the slope of a line through points (x_1, y_1) and (x_2, y_2) is $\frac{y_2 - y_1}{x_2 - x_1}$ or $\frac{\Delta y}{\Delta x}$.

1. Find the slope of the line through the points (1,5) and (3,11).

2. Find the slope of a line through the points (3,-1) and (-5,7).

3. Given the information below, write the equation for each line in y = mx + b form. Then graph each line and label it.



a. slope = 3, y-intercept of -4

b. slope = $\frac{-2}{3}$, y-intercept of 6

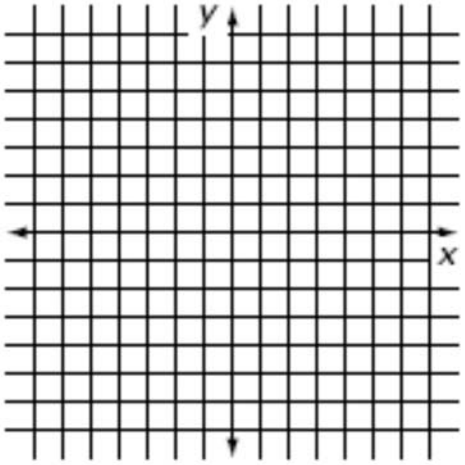
4. State the slope and y-intercept of each of the following lines. Then graph each line and label it on the coordinate plane.

(a) y = 2x – 5

slope _____ y-intercept _____

(b) y = $\frac{-1}{4}$x + 7

slope _____ y-intercept _____

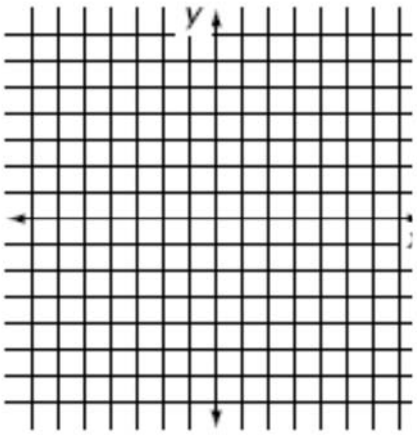


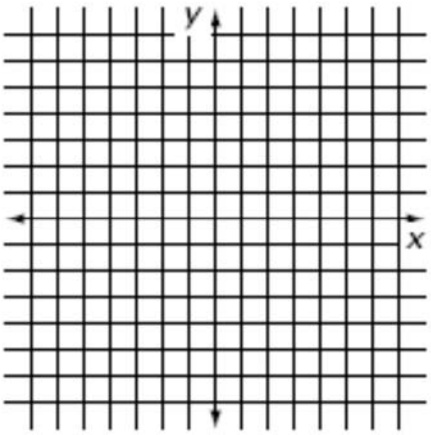
5. Find the slope and y-intercept of each of the following lines, then graph it.

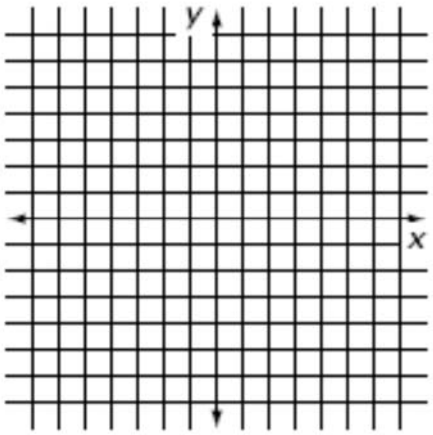
(a) $4x + 5y = 20$ (b) $x = 4$ (c) $y = -3$

slope _____ slope _____ slope _____

y-intercept _____ y-intercept _____ y-intercept _____

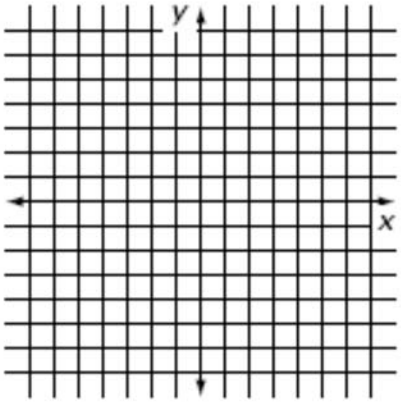






6. (a) Find the slope of the line with y-intercept of 6 which passes through the point (3,4).
[HINT: Find out what ordered pair corresponds to a "y-intercept of 6"]

(b) Write the equation of this line slope-intercept ($y = mx + b$) form.



7. Graph the points (7,4) and (-2,4).

What is the slope of this line? _____

8. Given a point in col. A, translate (slide) as indicated, and write the new point in col. B.

A	Translation	B
(2,3)	4 right, 3 down	_____
(-7, -4)	6 up, 4 left	_____
(0, 6)	4 right, 5 down	_____

II. Solving Algebraic Equations

Solve for the variable. Be sure to show all work for each problem.

9. $4x - 9 = 7x + 12$

x = _____

10. $5x + 16 = 2x$

x = _____

11. $2x - (2 - x) = 13$

x = _____

12. $5x - 2(4 - 2p) = 19$

x = _____

13. $\frac{4}{7}x = 7$

x = _____

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

x = _____

15. $7x - 2(1+3x) = 2$

x = _____

16. $-3(x - 8) - 5 = 9(x + 2) + 13$

x = _____

17. $-3x + 5(6 - x) = 4(1 + 2x)$

x = _____

18. $2(m - 8) + 7 = 5(m + 2) + 3m - 19$

x = _____

In #19-21, solve the following systems of equations using "elimination" (not "substitution")

19. $\begin{cases} 2x+3y=-4 \\ -2x+4y=-3 \end{cases}$

x = _____

y = _____

20. $\begin{cases} 5x+2y=11 \\ x+6y=19 \end{cases}$

x = _____

y = _____

21. $\begin{cases} 6x+3y=-12 \\ 2x-y=-4 \end{cases}$

x = _____

y = _____

22. Simplify the following radicals, giving EXACT value solutions.

(a) $\sqrt{8}$ _____

(b) $\sqrt{12}$ _____

(c) $\sqrt{50}$ _____

(d) $3\sqrt{32}$ _____

23. Expand the following.

(a) $(x + 5)(x - 3)$ _____

(b) $(m + 2)^2$ _____

(c) $(2x + 3)(4x - 1)$ _____

(d) $(2x + 3y)(x + y)$ _____

(e) $(2x + 1)^2$ _____

(f) $(x + 3)(x^2 + 2x + 5)$ _____