

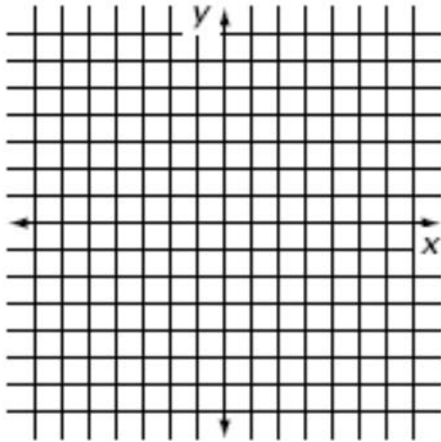
This summer packet is for all students enrolled in Geometry CP for next year. Geometry requires a strong understanding of Algebra to be successful. The topics and problems in the packet should help you review concepts learned in your Algebra I course and will be used throughout the Geometry course.

This packet is due on the first day of school. Complete the packet in pencil and show all work for each of the problems in an organized manner. The packet will be collected and graded.

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.



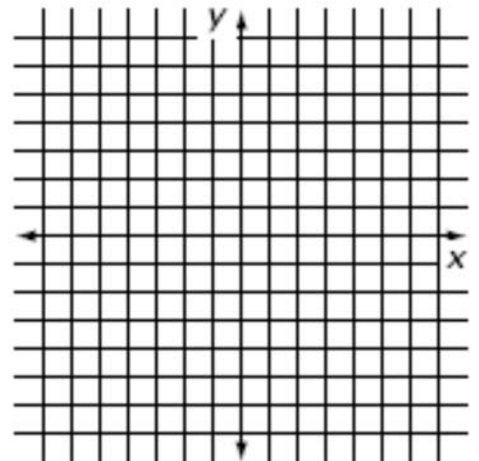
a. slope = 3, y-intercept of -4

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 _____

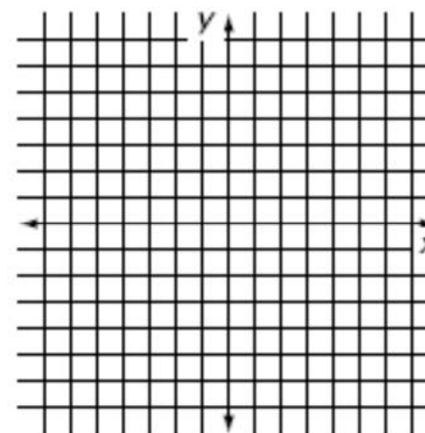
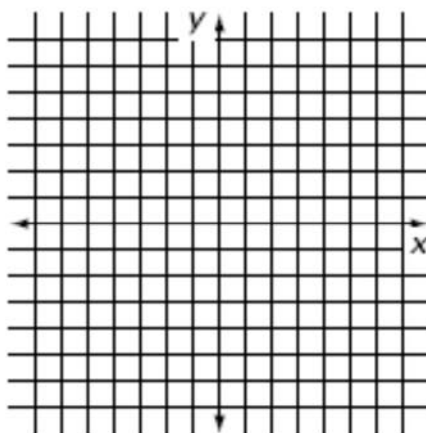
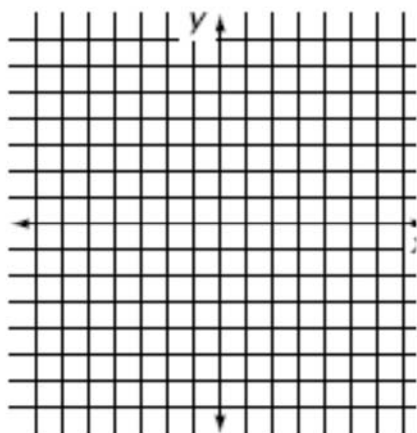
slope _____

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. What is the slope of the points (7,4) and (-2,4)? _____

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	_____

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

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

10. $5x + 16 = 2x$

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

x = _____

x = _____

x = _____

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

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

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

x = _____

x = _____

x = _____

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

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

x = _____

x = _____

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

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

x = _____

x = _____

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

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

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

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

x = _____

x = _____

x = _____

y = _____

y = _____

y = _____

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

(a) $\sqrt{8}$

(b) $\sqrt{12}$

(c) $\sqrt{50}$

(d) $3\sqrt{32}$

23. Simplify the following using the F.O.I.L. method.

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

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

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

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

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

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