

STUDY GUIDE

ALGEBRA 2

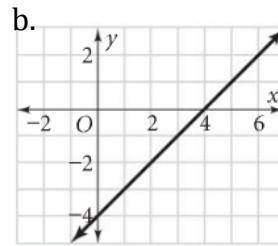
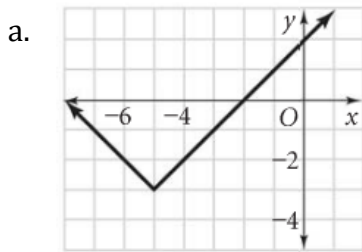
I. Find the meaning of the following mathematical words:

- | | | |
|------------------------|-------------------------|-------------------------|
| 1. Equation | 8. range | 15. system of equations |
| 2. compound inequality | 9. function | 16. feasible region |
| 3. inequality | 10. slope | 17. linear programming |
| 4. expression | 11. translation | 18. constraint |
| 5. domain | 12. inconsistent system | 19. objective function |
| 6. linear function | 13. absolute value | 20. correlation |
| 7. point-slope form | 14. linear inequality | |

II.

- Simplify $7 - 4(x + y) + 2(x - 3y)$.
- Evaluate $-3m^2 - (m + n)^2$ when $m = 2$, $n = -4$
- Find $f(-5)$ for the function $f(x) = 5x + 35$.
- Name the multiplicative inverse of $\frac{ab}{c}$.
- Name the property of real numbers illustrated by each equation.
 - $6(-4 + 8) = 6(-4) + 6(8)$
 - $(5p \cdot 4)3 = 5p(4 \cdot 3)$
- What set of real numbers do the following belong?
 - 3
 - 6
 - $\sqrt{20}$
- Determine the domain and the range. $\{(2,-3), (-5,6), (3, 0), (1, 1)\}$
- Solve the following equation/inequality.
 - $3(x - 2) + 4 \leq -3x + 1$.
 - $|2y - 4| = 12$
 - $3|4w - 1| - 5 = 10$
 - $|3x + 5| = 5x + 2$
 - $|2x - 3| = -1$
 - $3|3x - 12| \leq 9$
- Find the x- and y-intercepts of the line $2x - 6y = 18$
- What is the slope of the line $2(x - 5) = -6y$?
- Write the equation in slope - intercept form: $5x - 7y = 15$
- Graph each function.**
 - $y = 3x + 3$
 - $f(x) = |x| - 4$
- Graph the inequality $|x - 5| - 4 > -1$.

14. Write an equation for each graph.



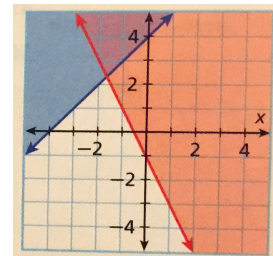
15. The graph of $y = |x|$ is translated down 5 units and right 4 units. What is the equation of the new graph?

16. Describe the translation from parent functions:

a. $g(x) = |x - 2| + 3$

b. $h(x) = \frac{1}{2}(x - 4)^2 - 5$

17. Write the system of inequality that describes the graph at the right.



18. Describe the first step in solving the system using substitution method.
$$\begin{cases} x = -2y + 4 \\ 2x - 3y = 5 \end{cases}$$

19. Find the equation of the line parallel to $y = 5x - 1$ and passes through the point $(8, -1)$.

20. Find the equation of the line perpendicular to $2x + 5y = 1$ and passes through the point $(2, 3)$.

III. PERFORMANCE TASK

21. Solve the system using three different methods.

$$8x + y = -16$$

$$-3x + y = -5$$

22. Compare the transformation from parent graph $f(x) = |x|$ to $h(x) = |x + 2| - 3$ using table of values and graph.

23. CHALLENGE AND EXTEND

30. **Medicine** A pharmaceutical company is testing a new antibiotic on two sample strains of bacteria. To properly assess the effectiveness of the antibiotic, more than 700 viable bacteria samples must be tested, at least 400 of which must be type B. The company would like to minimize the amount of money spent on bacteria.

- Graph the feasible region.
- What do the points $(350, 400)$ and $(400, 350)$ represent for this problem situation?
- Do the points satisfy the constraints? Why or why not?

