Name_____ Date_____

Chapter 5 Test B

Solve the system of linear equations using any method.

1. $x - 5y = -30$
   $3x + 5y = 10$
   $4x = -20$ $x = -5$

2. $x + 2y = -3$
   $-5x + 2y = 51$

3. $2(-5x - 4y = -15)$
   $10x + 8y = 30$
   $-10x - 8y = -30$
   $0 = 0$

4. $y = (-2x + 3)$
   $-4x + 2y = 8$

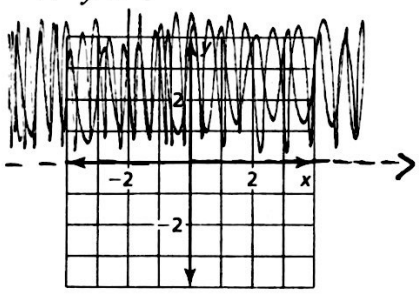
5. $y = (-5x + 6)$ $y = 6$
   $2x + y = 6$
   $2x - 5x + 6 = 6$
   $-3x = 0$ $x = 0$

6. $x = -y - 1$
   $-5x + 2y = -65$

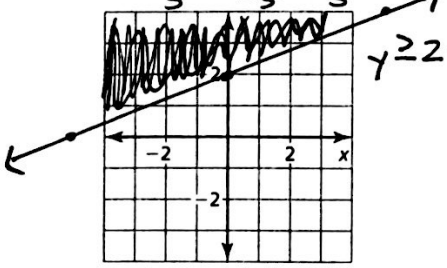
Graph the inequality in a coordinate plane.

flip sign when $\div(-5)$

7. $y > 0$

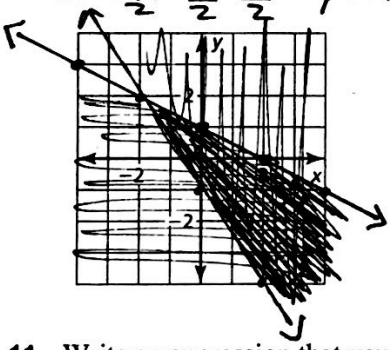


8. $\frac{-5y}{-5} \le \frac{-10}{-5} - \frac{2x}{-5}$ $y \ge 2 + \frac{2}{5}x$

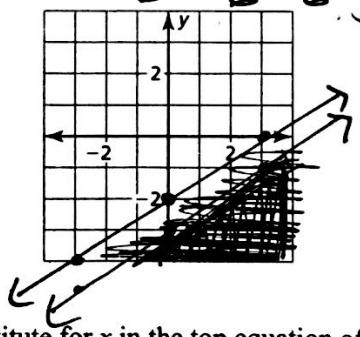


Graph the system of linear inequalities.

9. $\frac{x}{2} + \frac{2y}{2} \ge \frac{-2}{2} - \frac{3x}{2}$ $y \ge -1 - \frac{3}{2}x$
   $\frac{x}{2} + \frac{2y}{2} \le \frac{2}{2} - \frac{x}{2}$ $y \le 1 - \frac{1}{2}x$



10. $\frac{x}{-3} - \frac{3y}{-3} \ge \frac{6}{-3} - \frac{2x}{-3}$ $y \le -2 + \frac{2}{3}x$
    $\frac{-x}{6} + \frac{6y}{6} \le \frac{-18}{6} + \frac{4x}{6}$ $y \le -3 + \frac{2}{3}x$



11. Write an expression that you can substitute for x in the top equation of the system below to solve the system by substitution.

Solve for bottom "x"

$5x - 2y = 8$
$x - y = 1$
$+y \quad +y$

$x = 1 + y$

12. You have $8.80 in pennies and nickels. You have twice as many nickels as pennies. Write a system of linear equations that models the situation. How many of each type of coin do you have?

pennies $= x$
nickels $= y$

80 pennies
160 nickels

$0.01x + 0.05y = 8.80$
$(2x) = y$
$0.01x + 0.05(2x) = 8.80$
$0.01x + 0.1x = 8.80$
$\frac{0.11x}{0.11} = \frac{8.80}{0.11}$
$x = 80$

$2x = y$
$2(80) = y$
$160 = y$

Answers

1. $(-5, 5)$
2. $(-9, 3)$
3. IM
4. $(-\frac{1}{4}, \frac{7}{2})$
5. $(0, 6)$
6. $(9, -10)$
7. See left.
8. See left.
9. See left.
10. See left.
11. $1 + y$
12. 80 pennies, 160 nickels

$x - 5y = -30$
$-5 - 5y = -30$
$-5 \quad +5$
$\frac{-5y}{-5} = \frac{-25}{-5}$
$y = 5$

$x + 2y = -3$
$+5x + 2y = 51$
$\frac{6x}{6} = \frac{-54}{6}$
$x = -9$
$x + 2y = -3$
$9 + 2y = -3$
$9 \quad +9$
$\frac{2y}{2} = \frac{6}{2}$
$y = 3$

$4x + 2(-2x + 3) = 8$
$4x - 4x + 6 = 8$
$8x + 6 = 8$
$-6 \quad -6$
$\frac{-8x}{-8} = \frac{2}{-8}$
$x = -\frac{1}{4}$
$y = -2x + 3$
$y = -2(-\frac{1}{4}) + 3$
$y = \frac{2}{4} + 3$
$y = 3\frac{1}{2}$ or $\frac{7}{2}$

$x = (-y - 1)$
$5x + 2y = -65$
$5(-y - 1) + 2y = -65$
$-5y + 5 + 2y = -65$
$\frac{7y}{7} + \frac{5}{-5} = \frac{-65}{-5}$
$\frac{7y}{7} = \frac{-70}{7}$
$y = -10$
$x = -y - 1$
$-(-10) - 1$

Test B (continued)

SOLVE FOR Y AND LOOK AT SLOPES

Compare the slopes and *y*-intercepts of the graphs of the equations in the linear system to determine whether the system has one solution, no solution, or infinitely many solutions. Explain.

13. $x = -3y + 28$
$x + 4y = 36$
$y = -\frac{1}{3}x + \frac{28}{3}$; $y = -\frac{1}{4}x + 9$

14. $2x + 3y = 11$
$-4x - 6y = -22$

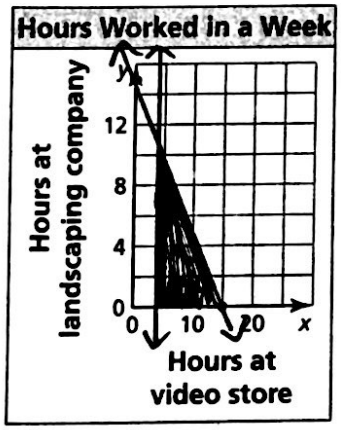
15. $x + 2y = 3$
$-2x - 4y = -20$

16. You make \$5 an hour in tips working at a video store and \$7 an hour in tips working at a landscaping company. You must work at least 4 hours per week at the video store, and the total number of hours you work at both jobs in a week cannot be greater than 15.

a. Write a system of linear inequalities to model the number of hours that you could work at each location in a week. nothing about money

$x \geq 4$
$x + y \leq 15$
$y \leq -x + 15$

b. Graph the system of linear inequalities.



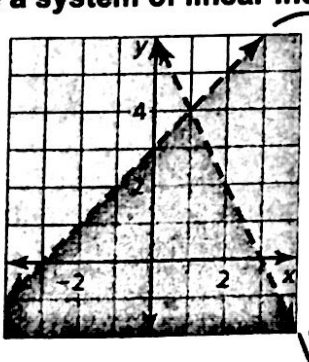
video = x
landscaping = y

c. Write an equation that models the total tips you receive from the two jobs.
P = Profit

d. Identify and interpret a solution of the system.

Write a system of linear inequalities represented by the graph.

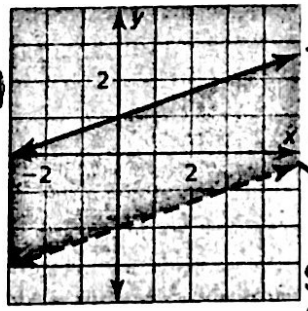
17.



shaded below
< for dashed line

shaded below
< for dashed line

18.



shaded below
≤ for solid line

shaded above
> for dashed line

Solve the equation by graphing. Check your solutions.

19. $2x - 3 = x + 2$

20. $|x - 1| = |2x - 5|$

21. $|-x| = |2x - 3|$

Answers

13. one solution
diff slopes
diff y-int

14. infinitely many
slope = $-\frac{2}{3}$
y-int = $\frac{11}{3}$

15. no solution
slopes = $-\frac{1}{2}$
y-ints are diff

16. a. $x \geq 4$
$x + y \leq 15$

b. See left.

c. $P = 5x + 7y$

d. may vary
(10, 2)
10 hrs @ video
2 hrs @ landscape

17. $y < 1x + 3$
$y < -2x + 6$

18. $y \leq \frac{1}{3}x + 1$
$y > \frac{1}{3}x - 2$

19. BONUS

20.

21.