Name Key Hour _____ Date _____

Chapter 4 Practice Test

Choose the best answer for the following.

1. Speedy Sam's Car Rental Company charges $62 for a daily rental plus $1.10 per mile. Racing Rod's Car Rental Company charges $84 for a one day rental plus $.65 per mile for the same model car. Which system of equations represents these rental plans if c represents cost and m represents miles?

a. $c = 1.10 + 62m$
$c = .65 + 84m$

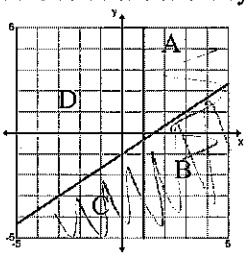
b. $c = 62 + 1.10m$
$c = 84 + .65m$

c. $m = 1.10 + 62c$
$m = .65 + 84c$

d. $m = 62 + 1.10c$
$m = 84 + .65c$

2. Which of the regions in the graph below represent the solutions to the system?

$$\begin{cases} y \le \frac{2}{3}x - 1 \\ x \ge 1 \end{cases}$$



a. A
b. B
c. C
d. D

3. Given the system, $\begin{cases} -x + y = -13 \\ 3x - y = 19 \end{cases}$ $y = x - 13$, $+y = +3x + 19$

Which of the following statements is true about the graph of the system?

a. The lines will intersect at one point.
b. The lines will never intersect.
c. The lines will have infinitely many points in common.
d. The lines will intersect at two points.

4. Solve the following system of equations. $\begin{cases} y = 2x - 1 \\ 2x + 2y = 22 \end{cases}$

$2x + 2(2x-1) = 22$
$2x + 4x - 2 = 22$
$6x = 24$
$x = 4$

a. $(\frac{10}{3}, \frac{17}{3})$
b. (7, 4)
c. (4, 7)
d. infinite solutions

5. Which system of inequalities models the following situation:
Sarah has two jobs, one is babysitting, which pays $5.50 an hour, and the other is bagging groceries, which pays $8 per hour. She can work no more than 16 hours a week, and needs to make at least $85 per week.
Let b = hours spent babysitting and g = hours spent bagging groceries.

a. $8b + 5.50g \ge 85$
$b + g < 16$

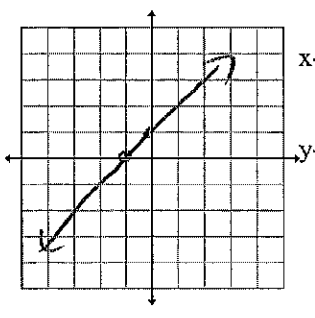
b. $5.50b + 8g \ge 16$
$b + g \le 85$

c. $8b + 5.50g < 16$
$b + g > 85$

d. $5.50b + 8g \ge 85$
$b + g \le 16$

Graph the following equation using the x and y-intercepts.

6. $2x - 2y = -2$

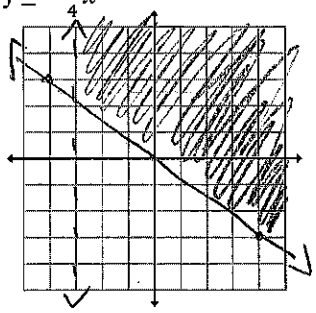


x-intercept: (−1 , 0)

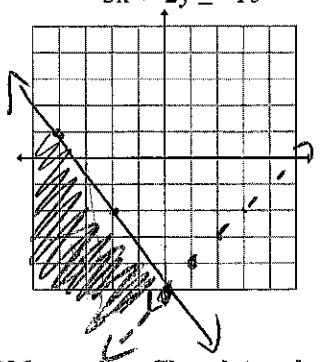
y-intercept: (0 , 1)

Graph the solution set for each system of inequalities.

7. $x > -3$
   $y \geq -\frac{3}{4}x$

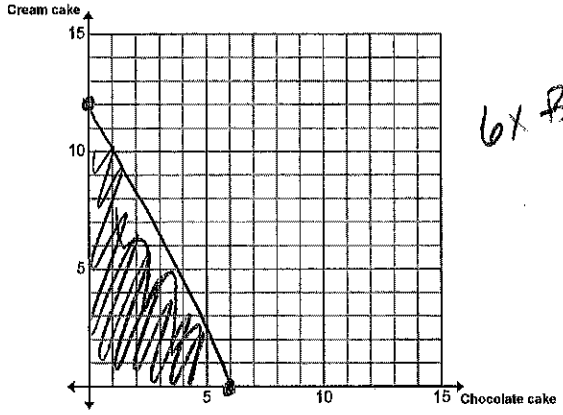


8. $y > x - 5$
   $3x + 2y \leq -10$



$2y \leq -3x - 10$
$y \leq -\frac{3}{2}x - 5$

9. For a party, you can spend no more than $36 on cakes. Chocolate cake cost $6 and Cream cake cost $3. Write the linear inequality that models the situation. Graph the inequality.



$6x + 3y \leq 36$

Inequality $6x + 3y \leq 36$

No Solution ✓ Int Many ✓

Express each equation in Slope-intercept form. Then, state whether the solution is inconsistent, consistent and dependent or consistent and independent. Consistent & independent

1 solution

10. $7x + y = 6$
    $5x + 3y = 34$
    $3y = -5x + 34$
    $y = -7x + 6$
    $y = -\frac{5}{3}x + \frac{34}{3}$

11. $y = -x + 4$
    $3x - y = -12$
    $-y = -3x - 12$
    $y = -x + 4$
    $y = 3x + 12$
    Consistent & independent

Use Substitution to solve:

12. $2x + y = -12$
    $-4x - 2y = 30$
    $y = -2x - 12$
    $-4x - 2(-2x - 12) = 30$
    $-4x + 4x + 24 = 30$
    $24 = 30$
    $\emptyset$

13. $3x - 3y = 21$
    $y = x - 7$
    $3x - 3(x - 7) = 21$
    $3x - 3x + 21 = 21$
    Int. Many Solutions

Use Elimination to solve:

14. $4x + y = 21$
    $-2x + 6y = 9$
    $-9 + 1y = -9$
    $4x + y = 21$
    $-4x + 12y = 18$
    $13y = 39$
    $y = 3$
    $4x + 3 = 21$
    $4x = 18$
    $x = 4.5$
    $(4\frac{1}{2}, 3)$

15. $7x + y = 6$
    $5x + 3y = 34$
    $-21x - 3y = -18$
    $-16x = 16$
    $x = -1$
    $-7 + y = 6$
    $y = 13$
    $(-1, 13)$
    $-5 + 39 = 34$

For the following story problems, be sure to define two variables and write two equations then use any method to solve.

16. The sum of two numbers is 32 and their difference is 12. What are the two numbers?

$x+y=32$ $\quad 2x=44$ $\quad$ 22 & 10

$x-y=12$ $\quad x=22$

17. The owner of a hair salon charges $20 more per haircut than the assistant. Yesterday the assistant gave 12 haircuts. The owner gave 6 haircuts. The total earnings from haircuts were $750. How much does the owner charge for haircuts?

379.999

$12a+6o=750$ $\quad 12a+6(a+20)=750$

$o=a+20$ $\quad 12a+6a+120=750$

$18a=630$

$a=35$

$o=55$

18. It takes a florist 3 h 15 min to make 3 small centerpieces and 3 large centerpieces. It takes 6 h 20 min to make 4 small centerpieces and 7 large centerpieces. How long does it take to make each small centerpiece and each large centerpiece?

1.6

$195=3s+3l$ $\quad -12s-21l=-1140$

$380=4s+7l$ $\quad -9l=-360$

$12s+12l=780$

$l=40$ minutes

$s=25$ minutes

19. Jay has written 24 songs to date. He writes an average of 6 songs per year. Jenna started writing songs this year and expects to write about 12 songs per year. How many years from now will Jenna have written as many songs as Jay?

$y=6x+24$ $\quad 6x+24=12x$

$y=12x$ $\quad 24=6x$

$x=4$

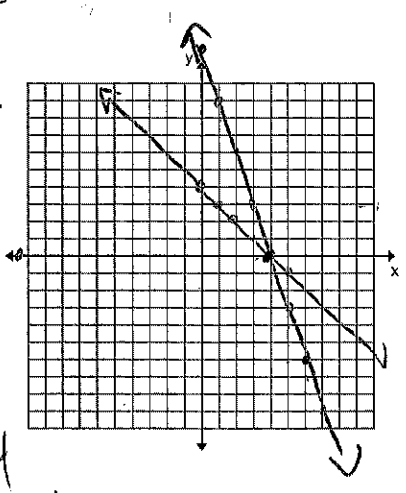
4 years

Graph the system of equations. Determine whether the system has no solution, one solution, or infinitely many solutions. If the system has one solution, label the solution on the graph.

20. ~~$2x+y=21$~~ ~~$x-y=7$~~

$3x+y=12$

$x+y=4$



One solution

(4, 0)

$y=-3x+12$

$3x+y=12$

$y=-x+4$

$x+y=4$