

Name \_\_\_\_\_

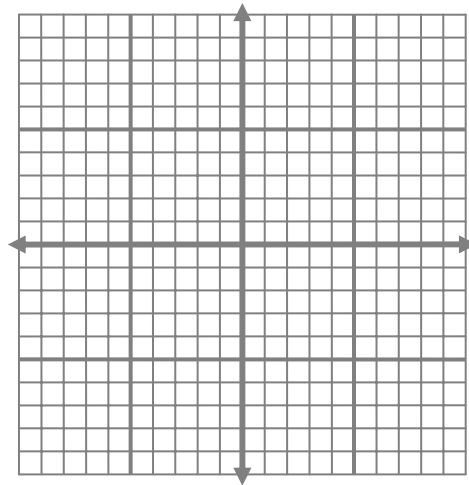
## CHAPTER 4 TEST FORM C

1. If two lines intersect at one point, the system is called
  - a. consistent and dependent
  - b. consistent and independent
  - c. inconsistent and independent
  - d. inconsistent and dependent
  
2. If two lines are identical, the system is called
  - a. consistent and dependent
  - b. consistent and independent
  - c. inconsistent and independent
  - d. inconsistent and dependent
  
3. Determine if  $(3, -4)$  is a solution of  $\begin{cases} 2x + 5y = -14 \\ 3x - 4y = 25 \end{cases}$ 
  - a.  $(3, -4)$  is a solution of only the first equation
  - b.  $(3, -4)$  is a solution of only the second equation
  - c.  $(3, -4)$  is a solution of both equations
  - d.  $(3, -4)$  is a solution of neither equation
  
4. Determine if  $\left(\frac{1}{3}, -2\right)$  is a solution of  $\begin{cases} 2x - 2y = 6 \\ 3x - y = -1 \end{cases}$ 
  - a.  $\left(\frac{1}{3}, -2\right)$  is a solution of only the first equation
  - b.  $\left(\frac{1}{3}, -2\right)$  is a solution of only the second equation
  - c.  $\left(\frac{1}{3}, -2\right)$  is a solution of both equations
  - d.  $\left(\frac{1}{3}, -2\right)$  is a solution of neither equation

5. If line 1 has slope 2 and y-intercept 3 and line 2 has slope 2 and y-intercept  $-3$ , how many solutions does the system have?
- one solution
  - infinitely many solutions
  - cannot determine from the information given
  - no solution
6. If line 1 has slope  $-3$  and y-intercept 4 and line 2 has slope 3 and y-intercept 4, how many solutions does the system have?
- one solution
  - infinitely many solutions
  - cannot determine from the information given
  - no solution
7. Solve the following system by graphing and then give the y-coordinate of the solution.

$$\begin{cases} x + 2y = 6 \\ x - y = 3 \end{cases}$$

- $y = 4$
- $y = -1$
- $y = 1$
- $y = -4$



8. What must “ $a$ ” and “ $b$ ” equal so the following system has infinitely many solutions?

$$\begin{cases} 2x - 3y = -6 \\ y = ax + b \end{cases}$$

- a.  $a = -\frac{2}{3}, b = 2$   
 b.  $a = -2, b = -6$   
 c.  $a = \frac{2}{3}, b = -6$   
 d.  $a = \frac{2}{3}, b = 2$
9. The substitution method will be used to solve  $\begin{cases} x - y = -6 \\ 2x + 4y = 7 \end{cases}$ . Solve equation 1 for  $y$ .

- a.  $y = -3x - 6$   
 b.  $y = 3x + 6$   
 c.  $y = 3x - 6$   
 d.  $y = -3x + 6$

10. The system of equations  $\begin{cases} y = 2x - 4 \\ 5x - 4y = 6 \end{cases}$  will be solved by substitution. Substitute equation 1 into equation 2. The new equation is

- a.  $-5x + 16 = 6$   
 b.  $-5x - 4 = 6$   
 c.  $-5x - 16 = 6$   
 d. none of these

11. In solving a system of equations using the substitution method, suppose you obtain the result of  $3 = 4$ . What term is used to describe the system?
- dependent system
  - none of these
  - consistent system
  - inconsistent system

12. Which variable in which equation would be the best to solve for in step 1 of the substitution method to make the easiest work in solving the following system?

$$\begin{cases} 5x - 6y = 2 \\ 2x - y = 4 \end{cases}$$

- Solve for  $y$  in the first equation.
  - Solve for  $x$  in the first equation.
  - Solve for  $y$  in the second equation.
  - Solve for  $x$  in the second equation.
13. Which of the following systems is written in the correct form for using the elimination (addition) method?

- $$\begin{cases} 3x - 5y = 8 \\ 6y + 2x = 9 \end{cases}$$
- $$\begin{cases} 3x - 8 = 5y \\ 2x + 6y = 9 \end{cases}$$
- $$\begin{cases} 3x - 5y = 8 \\ 2x + 6y = 9 \end{cases}$$
- $$\begin{cases} 3x - 5y = 8 \\ 2x - 9 = -6y \end{cases}$$

14. The method of elimination (addition) will be used to solve the system 
$$\begin{cases} 2x - y = 6 \\ x - 3y = 2 \end{cases}$$
.

Which of the following equations is equivalent to equation 1 and can be used with equation 2 to eliminate  $y$  by addition?

- $-6x + 3y = 6$
- $6x + 3y = 18$
- $6x + 3y = 6$
- $-6x + 3y = -18$

**In problems 15 - 18, solve the systems by substitution or elimination (addition).**

15. Find the  $y$ -coordinate of the solution of the system 
$$\begin{cases} x - 4y = 1 \\ x + 4y = 17 \end{cases}$$
.

- $y = 2$
- $y = \frac{1}{2}$
- $y = -\frac{1}{2}$
- $y = 3$

16. Find the  $x$ -coordinate of the solution of the system 
$$\begin{cases} 2x + y = 1 \\ x - 3y = 19 \end{cases}$$
.

- $x = 2$
- $x = \frac{20}{11}$
- $x = -2$
- $x = -3$

17. Find the  $y$ -coordinate of the solution of the system 
$$\begin{cases} 2x - 5y = 26 \\ x - 3y = 27 \end{cases}$$
.

- $y = \frac{53}{19}$
- $y = 3$
- $y = -4$
- $y = 4$

18. Find the  $x$ -coordinate of the solution of the system

$$\begin{cases} x + \frac{y}{3} = 0 \\ x + \frac{2y}{3} = \frac{4}{3} \end{cases}$$

- a.  $x = 3$   
b.  $x = -2$   
c.  $x = 2$   
d.  $x = -3$
- In problems 19 and 20, solve by writing a system of two equations in two variables.**
19. Two angles are complementary. The measure of one angle is  $30^\circ$  more than twice the measure of the other. Find the measure of the larger angle.
- a.  $70^\circ$   
b.  $40^\circ$   
c.  $20^\circ$   
d.  $50^\circ$
20. A boat traveled 48 miles downstream in 4 hours and made the return trip in 6 hours. Find the rate of the current.
- a. 10 mph  
b. 4 mph  
c. 3 mph  
d. 2 mph

21. How many milliliters of a 6% acid solution and a 12% acid solution should be used to make 250 ml of an 8% acid solution? Choose the system that would solve the application. Let  $x$  = number of liters of 6% acid solution and  $y$  = number of liters of 12% acid solution.

- a.  $x + y = 250$   
 $0.06x + 0.12y = 20$
- b.  $x + y = 250$   
 $0.06x + 0.12y = 250$
- c.  $x + 250 = y$   
 $0.06x + 0.12y = 20$
- d.  $x + y = 250$   
 $0.06x + 0.12y = 200$

22. Hilda wants to invest part of \$6000 in an account that paid 3% and part in an account that paid 5%. The total annual interest from both accounts is \$256. How much was invested at 5%?

- a. \$3800  
 b. \$772  
 c. \$4000  
 d. \$3500

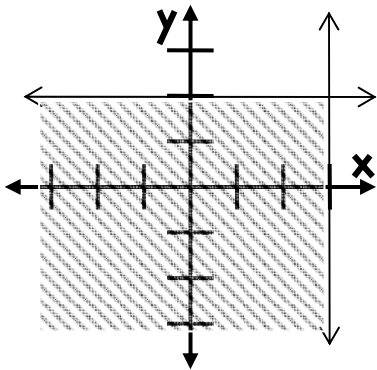
23. The solutions for the system  $x > 0$   
 $y > 0$   
 $x + y < 3$  are in

- a. Quadrant I  
 b. Quadrant II  
 c. Quadrant III  
 d. Quadrant IV

24. Which of the following points cannot be used as a test point to determine which region to shade for  $2x - 3y \leq 6$ ?

- a.  $(-6, 2)$
- b.  $(6, -2)$
- c.  $(6, 2)$
- d.  $(-6, -2)$

25. Find the system of inequalities which corresponds to the following graph.



- a.  $x \geq 3$   
 $y \geq 2$
- b.  $x \leq 3$   
 $y \geq 2$
- c.  $x \geq 3$   
 $y \leq 2$
- d.  $x \leq 3$   
 $y \leq 2$