Chapter 8 Practice

Disclaimer: The actual exam may differ. This is a tool to help you practice.

Determine whether the ordered pair is a solution of the system of equations. Remember to use alphabetical order of variables. Show work. There is only ONE answer...yes or no.

1) (3, 4); $y = 4x + -13$ 1) _____

$8x - y = 20$

Determine whether the ordered pair is a solution of the system of equations. Remember to use alphabetical order of variables.

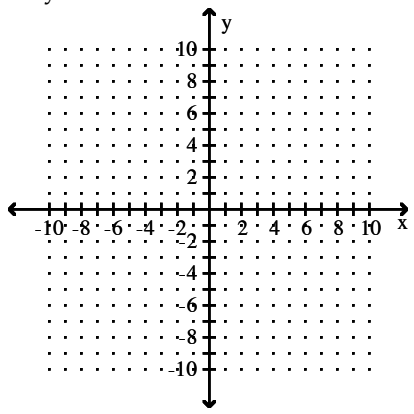
2) (–3, –1); $x - y = -2$ 2) _____

$y = 9x + 26$

Solve the system graphically. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this.

3) $x - y = 2$ 3) _____

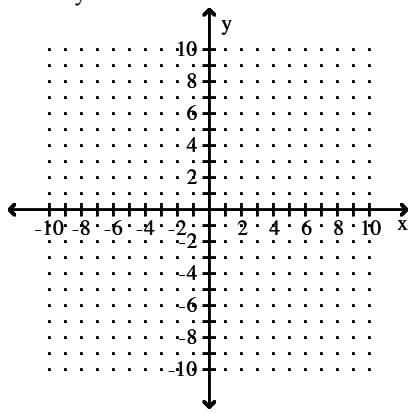
$x + y = 14$



Solve the system graphically. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this. Label at least two point on each line and indicate what the solution is. Grahing method MUST be used corretly to receive any credit.

4) $4x + 3y = 15$ 4) _____

$3x + 2y = 11$



Identify the system as consistent or inconsistent, AND dependent or independent. Work must be shown. Remeber there are two questions being asked here.

5) $a - 5 = b$ 5) _____

$b + 9 = a$

Identify the system as consistent or inconsistent, and dependent or independent.

6) $2x + 5y = 2$
$8x + 20y = 8$ 6) _____

7) $s - 3t = 6$
$3t + 1 = s$ 7) _____

Translate the problem situation to a system of equations. Do not attempt to solve. No need to show work. Just set up the system of equations WITHOUT solving.

8) The sum of two numbers is 30. Five times the smaller number minus twice the larger number is 52. What are the numbers? (Let x represent the smaller number and y represent the larger number.) 8) _____

Solve using the substitution method. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this. SUBSTITUTION method must be used to recieve credit. Write answer as an ordered (x,y) pair.

9) $3x + y = 13$
$2x + 9y = -8$ 9) _____

Solve using the substitution method. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this. Substitution method must be used to receive credit.

10) $3y + x = -7$
$x = 4y + 9$ 10) _____

Solve using any legitimate method. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this.

11) $x + y = -2$
$x + y = 7$ 11) _____

Solve using the elimination method. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this. Elimination method MUST be used to receive credit. Write the answer, if it exists, as an (x,y) pair.

12) $x + 2y = -16$
$4x + 2y = -22$ 12) _____

Solve using the elimination method. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this. Elimination method MUST be used to receive credit.

13) $3x + 5y = -2$
$-6x - 10y = 4$ 13) _____

Solve using any appropriate method. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this. If there is an answer write it as an (x,y) pair.

14) $4x - 8y = -8$
$9x + 3y = 45$ 14) _____

Solve using any appropriate method. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this.

15) $x - 5y = 4$
$x = 9 + 5y$ 15) _____

Solve the problem.

16) Two angles are complementary. The sum of the first angle plus twice the second angle is 105°. Find the measures of the angles. Include correct units in your answer. Show work. 16) _____

17) The perimeter of a rectangle is 16 cm. The length is 4 cm longer than the width. Find the dimensions. Include units in solution and show work. 17) _____

18) The speed of a current is 6 mph. If a boat travels 52 miles downstream in the same time that it takes to travel 26 miles upstream, what is the speed of the boat in still water? Include units in solution and show work. 18) _____

19) How many liters of a 20%–alcohol solution must be mixed with 50 liters of a solution that is 80% alcohol to get a solution that is 30% alcohol? Include units in solution and show work. 19) _____

20) Walt made an extra $7000 last year from a part–time job. He invested part of the money at 7% and the rest at 8%. He made a total of $530 in interest. How much was invested at 8%? Include units in your answer. Show work. 20) _____

21) Joe has a collection of nickels and dimes that is worth $4.10. If the number of dimes was doubled and the number of nickels was increased by 17, then the value of the coins would be $7.05. How many dimes does he have? 21) _____

22) Determine whether (–3, –1, 4) is a solution of the system. show work. There is one answer, yes OR no. 22) _____
$2x - 2y - 3z = -16$
$4x - 3y + 3z = 3$
$x + y - 5z = -24.$

23) Determine whether (2, 9, –4) is a solution of the system. Show work. There is one answer, yes OR no. 23) _____
$2x - 5y - 9z = -5$
$x + y + z = 7$
$3x - y + 5z = 35.$

24) Determine whether (7, 2, –5) is a solution of the system. There is one answer, yes OR no. 24) _____
$3x - 8y + z = 0$
$2x + 4y - 3z = 37$
$-x + 2y - z = 2.$

Solve the system. Show work. Write answer as (x,y,z) triple.

25) $x - y + z = 3$
$x + y + z = 9$
$x + y - z = 1$

25) _____

Solve the system.

26) $5x - y - 5z = 22$
$-6x + 5y - 9z = -26$
$2x - 3y + z = -6$

26) _____

Solve the system. Show work. Write answer as an (x,y,z) triple.

27) $x - y + 3z = -10$
$3x + z = -4$
$x + 2y + z = -8$

27) _____

Solve.

28) The sum of three numbers is –3. The first number minus the second plus 4 times the third is 11. The third plus 5 times the first plus the second is –7. Find the numbers. Work must be shown algebraically to receive credit.

28) _____

29) The sum of three numbers is 5. The sum of the first and second numbers is 3, and the first number is one more than three times the third number. How many of the numbers are even numbers?

29) _____

Evaluate. Show work.

30)

$$\begin{vmatrix} -3 & -6 \\ 7 & 2 \end{vmatrix}$$

30) _____

Evaluate.

31)

$$\begin{vmatrix} -1 & 1 \\ 3 & 3 \end{vmatrix}$$

31) _____

32)

$$\begin{vmatrix} 9 & 6 & 3 \\ 5 & 4 & 9 \\ 5 & 4 & 2 \end{vmatrix}$$

32) _____

33) $\begin{vmatrix} 8 & 0 & 0 \\ 1 & -3 & 0 \\ -3 & 2 & 9 \end{vmatrix}$ 33) _____

Solve using Cramer's rule. Cramer's rule must be used to receive credit. Write any answers as (x,y) pair

34) $2x + 6y = 2$ 34) _____
$6x + y = -28$

Solve using Cramer's rule. Cramer's rule must be used to receive credit. Write any answers as (x,y) pairs.

35) $2x - 2y = -2$ 35) _____
$2x + 3y = 23$

36) $2x + 2y = 28$ 36) _____
$2x - 3y = -2$

Solve using Cramer's rule.

37) $-2x - 6y - z = -57$ Cramer's rule must be used to receive credit. Write any answers as (x.y) pairs. 37) _____
$x + 4y + 5z = 57$
$5x + y + z = 51$

1) No
2) Yes
3) (8, 6)
4) (3, 1)
5) Inconsistent and independent
6) Consistent and dependent
7) Inconsistent and independent
8) $x + y = 30, 5x - 2y = 52$
9) (5, –2)
10) $\left(-\frac{1}{7}, -\frac{16}{7}\right)$
11) No solution
12) (–2, –7)
13) $\{(x, y) \mid 3x + 5y = -2\}$
14) (4, 3)
15) No solution
16) 75°, 15°
17) Width: 2 cm; length: 6 cm
18) 18 mph
19) 250 L
20) $4000
21) 21
22) Yes
23) No
24) Yes
25) (2, 3, 4)
26) (8, 8, 2)
27) (0, –2, –4)
28) –1, –4, 2
29) 2
30) 36
31) –6
32) –42
33) –216
34) (–5, 2)
35) (4, 5)
36) (8, 6)
37) (8, 6, 5)