

Exam

CH9

Name _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Determine whether the given ordered pair is a solution of the given system of equations.

1) $(-4, -5); \begin{cases} 2x + y = -3 \\ 3x + 2y = -2 \end{cases}$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

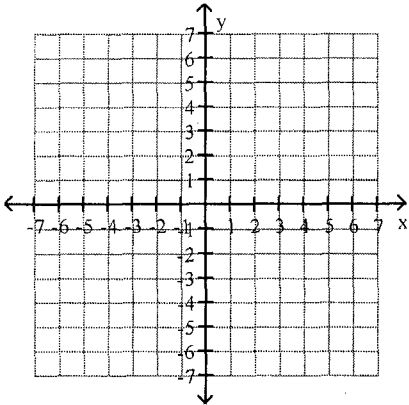
2) $(-2, 4); \begin{cases} 2x + y = 0 \\ 4x + 2y = 0 \end{cases}$

2) _____

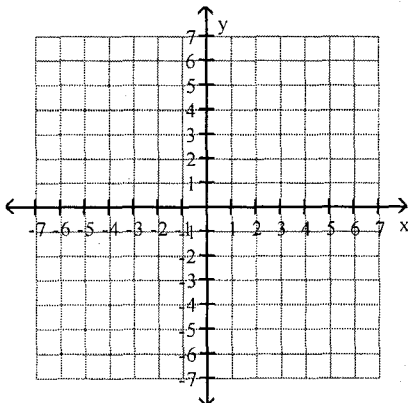
ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Solve the system graphically.

3) $\begin{cases} 2x + 2y = -2 \\ 3x - 2y = 12 \end{cases}$



4) $\begin{cases} x = -y \\ y + x = 6 \end{cases}$



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SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Determine the nature of the system of equations.

5)
$$\begin{cases} 3x - 5y = -8 \\ 9x - 15y = -36 \end{cases}$$
 5) _____

6)
$$\begin{cases} 2x - 7y = -37 \\ 4x - 14y = -74 \end{cases}$$
 6) _____

7)
$$\begin{cases} 2x + 2y = -2 \\ 5x + 6y = 2 \end{cases}$$
 7) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Solve the system of equations using substitution. Note that the system may be inconsistent or consistent with dependent equations.

8)
$$\begin{cases} x + 2y = -3 \\ 7x + 3y = -21 \end{cases}$$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

9)
$$\begin{cases} 2x + 10y = 4 \\ x = -5y + 2 \end{cases}$$
 9) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

10)
$$\begin{cases} x + y = 4 \\ 2x + 2y = 8 \end{cases}$$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

11)
$$\begin{cases} x + y = 4 \\ x + y = -7 \end{cases}$$
 11) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Translate the problem to a system of equations, then solve.

- 12) The difference between two numbers is 64. Five times the smaller number equals the larger number. Find the numbers.

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SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 13) The perimeter of a rectangle is six times its width. If the length was increased by 4 inches and the width by 7 inches; then the perimeter would be 160 inches. Find the width. 13) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

- 14) A biologist collected 276 fern and moss samples. There were 56 fewer ferns than moss samples. How many fern samples did the biologist collect?
- 15) Bob fenced in a rectangular garden in his yard. The length of the rectangle is 7 feet longer than the width, and the perimeter is 82 feet. What is the width of the rectangle?

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

- 16) When solving a system of equations, you get $x - 3 = x - 3$. How many solutions are there? 16) _____

Solve the system of equations using the elimination method.

- 17)
$$\begin{cases} x - 4y = -16 \\ 4x - 3y = -12 \end{cases}$$
 17) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

- 18)
$$\begin{cases} \frac{1}{3}x - \frac{1}{4}y = 1 \\ \frac{2}{3}x + \frac{1}{2}y = 3 \end{cases}$$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 19)
$$\begin{cases} 0.3x + 0.6y = 1.2 \\ -0.3x - 0.1y = -0.7 \end{cases}$$
 19) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Translate the problem to a system of equations, then solve using the elimination method.

- 20) Two angles are complementary. Twice one angle plus the other is 115° . Find the measure of each angle.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 21) One rental agency rents a van for \$27.00 per day plus \$0.17 per mile. A competitor rents a truck for \$18.00 per day plus \$0.20 per mile. For what mileage is the cost the same for renting the van one day? Round your answer to the nearest tenth of a mile. 21) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

22) Two angles are supplementary, and one is 40° more than three times the other. Find the smaller angle.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

23) In a right triangle, one acute angle is 54° more than twice the other. Find each acute angle. 23) _____

Determine if the given point is a solution of the system.

24) $(-3, -1, 4)$ 24) _____

$$\begin{cases} 2x - 2y - 3z = -16 \\ 4x - 3y + 3z = 3 \\ x + y - 5z = -24 \end{cases}$$

25) $(5, -4, 5)$ 25) _____

$$\begin{cases} 2x - 3y + 3z = 24 \\ 4x + 4y - 3z = -8 \\ 3x - 3y + 2z = 23 \end{cases}$$

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Solve the system of equations.

26)
$$\begin{cases} x + y + z = 0 \\ x - y + 4z = 7 \\ 2x + y + z = -4 \end{cases}$$

27)
$$\begin{cases} 2x + 10y + 4z = -42 \\ x + 5y + 2z = 21 \\ x + y + z = -2 \end{cases}$$

28)
$$\begin{cases} -2x - 2y + 6z = -2 \\ 6x + 6y - 18z = 6 \\ -10x - 10y + 30z = -10 \end{cases}$$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the determinant.

29) 29) _____

$$\begin{bmatrix} 3 & 1 & 0 \\ 1 & 2 & 5 \\ 5 & 5 & 3 \end{bmatrix}$$

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ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Solve using Cramer's Rule.

30)

$$\begin{cases} 6x + 8y = -8 \\ -4x + 4y = -4 \end{cases}$$

31)

$$\begin{cases} x - y + 4z = 7 \\ 5x + z = 3 \\ x + 2y + z = 13 \end{cases}$$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

32)

$$\begin{cases} 5x + 5y + z = 1 \\ 5x - 4y - z = 44 \\ 2x + y + 5z = 10 \end{cases}$$

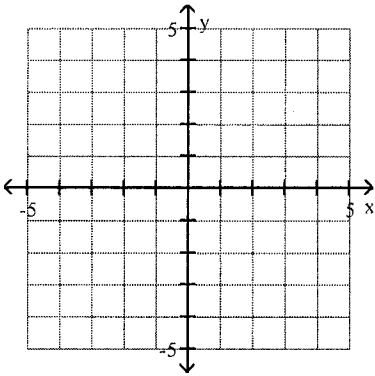
32) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Graph the solution of the system.

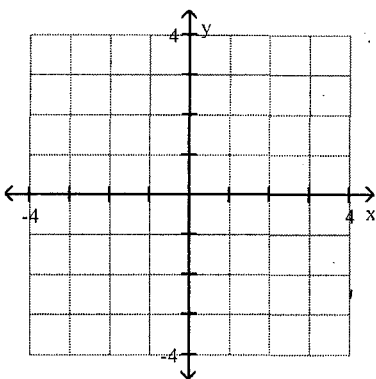
33)

$$\begin{cases} x - 2y \leq 2 \\ x + y \leq 0 \end{cases}$$



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$$34) \begin{cases} 3x > -4y \\ 3x + 4y \leq 8 \end{cases}$$



35)

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

