

Assignment

Write

Define each term in your own words.

1. consistent systems
2. inconsistent systems

Remember

When two or more equations define a relationship between quantities, they form a system of linear equations. The point of intersection of a graphed system of linear equations is the solution to both equations. A system of linear equations can have one solution, no solution, or infinite solutions.

Practice

1. Mr. Johanssen gives his class 50-question multiple choice tests. Each correct answer is worth 2 points, while a half point is deducted for each incorrect answer. If the student does not answer a question, that question does not get any points.
 - a. A student needs to earn 80 points on the test in order to keep an A grade for the semester. Write an equation in standard form that represents the situation. Identify 3 combinations of correct and incorrect answers that satisfy the equation.
 - b. Determine the x - and y -intercepts of the equation and use them to graph the equation. Explain what each intercept means in terms of the problem situation.
2. Wesley owns a dairy farm. In the morning, it takes him 0.3 hour to set up for milking the cows. Once he has set up, it takes Wesley 0.2 hour to milk each cow by hand. He is contemplating purchasing a milking machine in hopes that it will speed up the milking process. The milking machine he is considering will take 0.4 hour to set up each morning and takes 0.05 hour to milk each cow.
 - a. Write a system of linear equations that represents the total amount of time Wesley will spend milking the cows using the two different methods.
 - b. Graph both equations on a coordinate plane.
 - c. Estimate the point of intersection. Explain how you determined your answer.
 - d. What does the point of intersection represent in this problem situation?
 - e. Verify your answer to part (c) by solving the system algebraically.
 - f. Does the solution make sense in terms of this problem situation? Explain your reasoning.
 - g. Is this system of equations consistent or inconsistent? Explain your reasoning.
3. Identify whether each system is consistent or inconsistent. Explain your reasoning.

a.
$$\begin{cases} -3x + 4y = 3 \\ -12x + 16y = 8 \end{cases}$$

b.
$$\begin{cases} 7x + 3y = 0 \\ 14x + 6y = 0 \end{cases}$$

c.
$$\begin{cases} 6x + y = 1 \\ -6x - 4y = -4 \end{cases}$$

Stretch

Solve the system of equations shown. Explain your reasoning.

$$\begin{cases} 3x + 5y = 18 \\ y = |x - 4| \end{cases}$$

Review

1. Solve and graph each compound inequality.

a. $10 < x - 10 \leq 25$

b. $2x - 11 \leq -5$ or $\frac{1}{3}x + 5 \geq 2$

2. Solve the equation and check your solution.

$$\frac{3}{4}x - 11 = 4 + \left(-\frac{3}{4}x + 3\right)$$

3. Consider the equation $\frac{2}{5}x - 2y = 14$. Write the equation in general form and identify the slope and y -intercept.

4. Determine the linear regression equation for each data set. Which regression equation is the better fit? Explain your reasoning.

Set A

x	y
1	12
2	11
5	30
7	39
10	50

Set B

x	y
12	3
10	9
8	11
5	14
0	0