

# College Algebra

## Systems of Linear Equations Test

Print Name: \_\_\_\_\_

Each problem is 10 points for a total of 100 points. Write answers in space given. No answer in space, no credit. If there is no solution, simply write 'no solution.' You have a lot of space, be NEAT! Neatness counts for 5 points. Answers without work is 1 pt.

I received no help on this take home test.

Sign Name: \_\_\_\_\_

Solve the systems using the **elimination** method.

1) 
$$\begin{aligned} 3x + 5y &= 14 \\ 2x - 3y &= 3 \end{aligned}$$
  $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

2) 
$$\begin{aligned} x + y &= 5 \\ x + y &= 7 \end{aligned}$$
  $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

Solve the systems using the **substitution** method.

3) 
$$\begin{aligned} 3x + 2y &= 23 \\ x + y &= 8 \end{aligned}$$
  $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

4) 
$$\begin{aligned} 3x - y &= 4 \\ x + 3y &= -2 \end{aligned}$$
  $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

Solve the systems using a **matrix**. Fill in the matrix.

5)  $x + y = 37$   
 $y + z = 25$   
 $z + x = 22$



$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_

$z =$  \_\_\_\_\_

6)  $x + 2y + 3z = 14$   
 $2x + y + 2z = 10$   
 $3x + 4y - 3z = 2$



$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_

$z =$  \_\_\_\_\_

Solve the system using any method. You can use a matrix on **ONLY ONE**. Please write the matrix used.

7)  $x + 2y = 5$   
 $2x + y = 1$

$x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

8)  $4x + 5y = -2$   
 $5x + 4y = 2$

$x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

Word Problems:

Make sure to write your variables and equations! Use any method to solve.

9) The receipts from 300 tickets for a musical recital were \$125. Adults were charged 50 cents each and children 25 cents each. How many tickets of each kind were sold?

10) A man invested \$4000, part at 5% and the rest at 4%. If the annual interest paid from both investments was \$175, what was the amount of each investment?



*Final Exam: Study in groups! Math finals are never easy.*