

**Test**

Name \_\_\_\_\_

**1. Solve each system of equations using Matrices. NO WORK NEEDED!**

$$\begin{aligned} 12x - y + 12z &= 6 \\ \text{a. } 2x + y - 2z &= -4 \\ 9x + 2y + 3z &= 3 \end{aligned}$$

a \_\_\_\_\_

$$\begin{aligned} \text{b. } 5x + 9y &= 19 \\ 2x - y &= -20 \end{aligned}$$

b \_\_\_\_\_

$$\begin{aligned} 2x - y + z &= 4 \\ \text{c. } x + y - z &= 11 \\ 4x - 2y + 2z &= 5 \end{aligned}$$

c \_\_\_\_\_

$$\begin{aligned} 3x + 6y - 6z &= 9 \\ \text{d. } 2x - 5y + 4z &= 6 \\ -x + 16y + 14z &= -3 \end{aligned}$$

d \_\_\_\_\_

$$\begin{aligned} \text{e. } 3x - 5y &= 1 \\ 2x + y &= -2 \end{aligned}$$

e \_\_\_\_\_

$$\begin{aligned} x + 3y - 2z &= 4 \\ \text{f. } 4x - y + z &= -1 \\ 3x - 4y + 3z &= -5 \end{aligned}$$

f \_\_\_\_\_

**2. Evaluate the following expressions given the functions below:**

$$g(x) = 3x - 2$$

$$h(x) = x^2 - 3x + 5$$

$$f(x) = \frac{12}{x} + x$$

$$J(x) = \sqrt{x+1} - 3$$

a.  $g(5) =$  \_\_\_\_\_

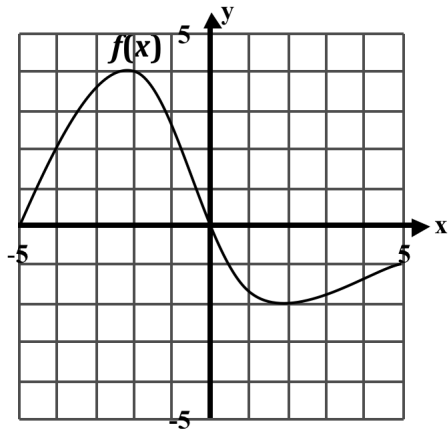
b.  $f(3) =$  \_\_\_\_\_

c.  $h(-2) =$  \_\_\_\_\_

d.  $J(8) =$  \_\_\_\_\_

e.  $h(4) =$  \_\_\_\_\_

3. Given this graph of the function  $f(x)$ :



Find:

a.  $f(-4) =$  \_\_\_\_\_

b.  $f(0) =$  \_\_\_\_\_

c.  $f(2) =$  \_\_\_\_\_

d.  $f(5) =$  \_\_\_\_\_

**Problem 4.** Steve Devine invested \$7200 for one year, part at 10% annual interest and the rest at 14% annual interest. His total interest for the year was \$960. How much money did he invest at each rate?

Accounts	p	r	t	I
Investment A				
Investment B				
Total				

Equations:	Matrix:	Solution

**Problem 5.** The sum of two numbers is 25. Twelve less than four times one of the numbers is 16 more than twice the other number. Find both numbers.

**One:**

**Other:**

Equations:	Matrix:	<b>Solution</b>

**Problem 6.** At a sale on winter clothing, Cody bought two pairs of gloves and four hats for \$43.00. Tori bought two pairs of gloves and two hats for \$30.00. Find the prices of the hats and gloves.

**Gloves:**

**Hats:**

Equations:	Matrix:	<b>Solution</b>

**Problem 7.** A class of 195 students went on a field trip. They took 7 vehicles, some cars and some buses. Find the number of cars and the number of buses they took if each car holds 5 students and each bus hold 45 students.

**# cars:**

**# buses:**

Equations:	Matrix:	<b>Solution</b>

**Problem 8.** The drama club at NAMS sells hot chocolate and coffee at the high school football games. At the last game, they had sales of \$200. They need to keep track of how many of each type drink was sold so that they can make predictions for future sales. Monica knows that they used 275 cups that night. If the hot chocolate sells for 75 cents and coffee sells for 50 cents, how much of each type of drink were sold?

**Chocolate:**

**Coffee:**

Equations:	Matrix:	<b>Solution</b>

**Problem 9.** The sum of three numbers is forty two. The second number is twice the first number and the third number is three less than the second number. Find the three numbers.

**(three equations and three variables)**

One:

Other:

Another:

Equations:	Matrix:	<b>Solution</b>

**Problem 10.** The sum of the digits of a certain two-digit number is 9. When you reverse its digits you decrease the number by 63. Find the number.

**Ten's:**

**One's:**

**Original number:**

Equations:	Matrix:	<b>Solution</b>

**Problem 11.** A boat traveled 64 miles downstream and 64 miles back. The trip downstream took 4 hours. The trip back took 8 hours. What is the speed of the boat in still water? What is the speed of the current?

**Boat:**

**Current:**

Object	Rate mph	Time	Distance
Going			
Returning			

Equations:	Matrix:	<b>Solution</b>

## Manipulating Formulas

Solve for the indicated variable. Write entire equation on answer blank.

12.  $wx = rx + 5t$  for  $x$

12. \_\_\_\_\_

13.  $AB + \frac{C}{R} = G$  for  $R$

13. \_\_\_\_\_

14.  $Hm - Dm + Rm = 7$  for  $m$

14. \_\_\_\_\_

15.  $A = \frac{1}{2}(B + C)H$  for  $B$

15. \_\_\_\_\_

16.  $\frac{3(x + m)}{f} = r$  for  $m$

16. \_\_\_\_\_