

Name \_\_\_\_\_

1) FIND THE INTERSECTION POINT OF TWO LINES BY THE ELIMINATION METHOD:  
Solve the following system of equations by Elimination Method.

$$3x + 9y = 45$$

$$2x + y = 10$$

2) FIND THE INTERSECTION POINT OF TWO LINES BY THE SUBSTITUTION METHOD:  
Solve the following system of equations.

$$3x + 9y = 45$$

$$2x + y = 10$$

3) Use these matrices to answer the following questions.

$$A = \begin{bmatrix} 4 & -3 & 7 \\ 5 & 0 & -8 \end{bmatrix} \quad B = \begin{bmatrix} -3 & 5 \\ 0 & -8 \end{bmatrix} \quad C = [4 \quad -3 \quad 7] \quad D = \begin{bmatrix} 5 & -2 & 9 \\ 3 & 0 & -6 \\ 4 & -1 & -2 \end{bmatrix}$$

$$E = \begin{bmatrix} a & b \\ c & d \\ e & f \end{bmatrix} \quad F = \begin{bmatrix} 4 & -3 \\ 5 & 0 \\ 9 & 2 \\ 7 & -8 \end{bmatrix} \quad G = \begin{bmatrix} w & x \\ y & z \end{bmatrix} \quad H = \begin{bmatrix} 4 \\ -3 \\ 0 \end{bmatrix}$$

A. List the size of each of the following matrices:

A = \_\_\_\_\_ B = \_\_\_\_\_ C = \_\_\_\_\_ D = \_\_\_\_\_

E = \_\_\_\_\_ F = \_\_\_\_\_ G = \_\_\_\_\_ H = \_\_\_\_\_

B. Do not compute – just answer question!! Are the following products possible to compute? **If so, write yes in the blank. If not, explain why not – be brief – but specific!**

AD \_\_\_\_\_ EF \_\_\_\_\_

FD \_\_\_\_\_ FG \_\_\_\_\_

- C. Find the product  $BG$ .
- D. Find 3 times matrix  $B$ , namely:  $3B$
- E. Find matrix  $B$  added to matrix  $G$ , namely  $B + G$
- F. Find the inverse of matrix  $B$ , namely,  $B^{-1}$
  
- G. Find matrix  $G$  being subtracted from matrix  $B$ , namely  $B - G$ .

4) A grain dealer sold to one customer 5 bushels of wheat, 2 of corn, and 3 of rye, for \$ 31.00. To another customer he sold 2 bushels of wheat, 3 of corn, and 5 of rye, for \$ 27.60. To a third customer he sold 3 bushels of wheat, 5 of corn, and 2 of rye for \$ 32.70. What was the price per bushel for each of the different grains?

Set up matrix equations for this problem and use inverses to solve.

Let  $x$  represent the price per bushel for wheat,  
 $y$  the price per bushel for corn, and  
 $z$  the price per bushel for rye.

Write the matrix algebra system for this problem:

Use inverses to solve the system

Write out the solution to the problem.