

VARs:Let f =the value of the first numberLet n =the value of the second number $\begin{cases} 3f + 2n = 8 \\ 2f - n = 3 \end{cases} \xrightarrow{Af - 2n = 6} \\ 7f = 14 \\ f = 2 \\ \hline f = 2 \\ \hline f = 1 \\$ 

- 4) The "solution" to a System of Linear equations in 2-variables is called a(n)?
- 5) The "solution" to a System of Linear equations in *3-variables* is called a(n)?
- 6) List <u>ALL 5 ways</u> that may be used to *solve* a System of Linear equations.
- 7) Write a Matrix equation for the \*system use to solve <u>prob. #3</u> above.
   [hint: must be in standard form] →

$$3x + 2y = 8$$
$$2x - y = 3$$

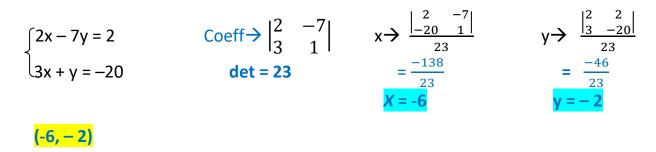
8) Given the matrix **A** below, Find: a) the **Order of Matrix A** 

b) the Scalar Product

$$\mathbf{A} = 5 \begin{bmatrix} 5 & -8 & 0 \\ 7 & 1 & -2 \\ 3 & 2 & 6 \end{bmatrix}$$

1) Break-even point: (500, 150000) Explain: If the company produces 500 bikes @ a cost of \$150,000, there is no Profit OR loss. Minimum number of bikes to start making a profit The value of b = \_\_\_\_ 5 The value of m = -63) First  $\# \rightarrow 2$ Second #  $\rightarrow$  1 4) Ordered Pair 5) **Ordered Triple** 6) **Graphing Substitution** Addition/Elimination **Cramer's Rule Matrix Equations** 7) 3 = 8) **3x3** a) 25 - 40 Ω 35 - 10 b) 5 15 30 10 9) (-6, -2) 10) a) square matrix b) ad  $-bc \neq 0$ **C)** commutative property

9) Solve the following system by using Cramer's Rule. SHOW ALL WORK FOR CREDIT!! Set up each determinant.



10) Fill in the blanks: a) To use Cramer's Rule The matrix must be a <u>square matrix</u>.

b) If A =  $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ , the **Matrix** is **Invertible** If and only if <u>ad - bc  $\neq 0$ </u>. c) What property of Algebra does not work with Matrices? <u>commutative property</u>.

**EXTRA CREDIT** Solve the following system using Cramer's Rule.  $\rightarrow$  Ans: (-1, 3, 2)Show the set-up of the *Major and Minor(s) determinants*. [Use a calculator to evaluate the determinants.]

$$\begin{aligned} 2x + 2y + 3z &= 10 \\ 4x - y + z &= -5 \\ 5x - 2y + 6z &= 1 \end{aligned}$$

$$D = \begin{vmatrix} 2 & 2 & 3 \\ 4 & -1 & 1 \\ 5 & -2 & 6 \end{vmatrix} \Rightarrow D = -55$$

$$D_x = \begin{vmatrix} 10 & 2 & 3 \\ -5 & -1 & 1 \\ 1 & -2 & 6 \end{vmatrix} \Rightarrow D_y = \begin{vmatrix} 2 & 10 & 3 \\ 4 & -5 & 1 \\ 5 & 1 & 6 \end{vmatrix}$$

$$D_z = \begin{vmatrix} 2 & 2 & 10 \\ 4 & -1 & -5 \\ 5 & -2 & 1 \end{vmatrix}$$

$$D_z = \begin{vmatrix} 2 & 2 & 10 \\ 4 & -1 & -5 \\ 5 & -2 & 1 \end{vmatrix}$$

$$D_z = -110$$

$$z = -110$$

$$z = -110$$

$$z = -110$$

$$z = -110$$