$5x-2y \leq 75$

$\begin{bmatrix} a & b \\ c & d \end{bmatrix}$

$S = Pe^{rt}$

$APY = (1+\frac{r}{n})^{n}-1$

Math 1090 ~ Business Algebra

Section 2.3 Gauss-Jordan Elimination

Objectives:
- Set up an Augmented Matrix to represent a set of linear equations.
- Perform elementary row operations to a matrix.
- Manipulate the matrix to provide a solution to the set of linear equations.
- Recognize when there is more than one solution or none at all.

Vocabulary

Augmented Matrix: A matrix that represents a system of linear equations.

Elementary Row Operations:
1.   Switch two rows.

2.   Multiply a row by a nonzero constant.

3.   Replace one row with the result of adding it to a nonzero multiple of another row.

Gauss-Jordan Elimination: A process for solving a system of linear equations, using elementary row operations until we have a triangular matrix like this:

$$\begin{bmatrix} 1 & 3 & 4 & : & 5 \\ 0 & 1 & 2 & : & 7 \\ 0 & 0 & 1 & : & -4 \end{bmatrix}$$

Ex 1: Solve. $3x - y = 3$
$x + z = 3$
$2x - y + z = 2$

Ex 2: Solve. $-2x + y = 1$
$2x - y = 7$

Ex 3: Solve.
$$10x + y = 6$$
$$3x + y + 2z = 3$$
$$2x - y - 2z = 2$$

Ex 4: Solve.
$$3x - 2y - 7z = 0$$
$$x - y - z = 1$$
$$-x + 2y - 3z = -4$$

Ex 5: Solve.
$$x + y + z = 1$$
$$x - y - z = 1$$
$$-x + y - z = 1$$