




$5x-2y \leq 75$



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



$S = Pe^{rt}$



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

Math 1090 ~ Business Algebra

Section 2.5 Application Problems with Matrices

Objectives:

- Employ a variety of strategies to solve systems of equations.
- Examine an example of matrices as used in encryption.

Application Problems with Matrices

Ex 1: (Encryption)

Use $M = \begin{bmatrix} 1 & -2 & 3 \\ -4 & 5 & -6 \\ 3 & -2 & 2 \end{bmatrix}$ to encrypt "JOYFUL" where A = 1, B = 2, etc.

Ex 2: A grocer is going to mix three kinds of nuts to make 40 lb. of a mixture that will be priced at \$5.95/lb. The three kinds of nuts are peanuts priced at \$4.00/lb., cashews at \$6.60/lb., and pistachios at \$8.20/lb. The mixture will contain twice as much in peanuts as cashews by weight. How many pounds of each nut are in the mix?

Ex 3: A company needs to borrow \$150,000. For tax and related reasons, the company wants to pay 7.3% interest on this loan. There are three lenders for this money. the first charges 6%, the second charges 7% and the third charges 10%. The company is going to borrow twice as much from the first lender as from the third. How much should the company borrow from each lender?