EXTRA HOMEWORK - MATH 110 DUE DATE: Friday, December 13 INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each problem is worth 3 points. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Solve the following system of linear equations using the Gauss-Jordan method:

2. Solve the following system by **all three** of the following methods: substitution, inverse matrix method and the Cramer's method.

 $\left\{\begin{array}{rrrr} -x &+& 2y &=& -18\\ 2x &-& 3y &=& 29 \end{array}\right\}$

- 3. Taking the long view of your education, you go to the Prestige Corporation and ask what you should do in college to be hired when you graduate. The Personnel Director replies that you will be hired only *if* you major in mathematics or computer science, get a B or better average, and take accounting. You do, in fact, become a math major, get a B^+ average and take accounting. You return to the Prestige Corporation, make a formal application and are turned down. Did the Personnel Director lie to you?
- 4. "If compound X is boiling, then its temperature must be at least $250^{\circ}F$ ". Assuming that this statement is true, which of the following must also be true?
 - (a) If the temperature of compound X is at least $250^{\circ}F$, then compound X is boiling.
 - (b) If the temperature of compound X is less than $250^{\circ}F$, then compound X is not boiling.
 - (c) Compound X will boil only if its temperature is at least $250^{\circ}F$.

- (d) If compound X is not boiling, then its temperature is less than $250^{o}F$.
- (e) A necessary condition for compound X to boil is that its temperature be at least $250^{\circ}F$.
- (f) A sufficient condition for compound X to boil is that its temperature be at least $250^{\circ}F$.
- 5. Determine of whether it is true that, for all sets A, B, C,

$$A \times (B \cup C) = (A \times B) \cup (A \times C).$$

If yes, give a proof. If not, give a counterexample.

6. A student council consists of three freshmen, four sophomores, three juniors and five seniors. How many committees of eight members of the council contain at least one member from each class?