

Quiz 4

Solve the following problem using the graphical method. Choose your variables, write the objective function and the constraints, graph the constraints, shade the feasibility region, label all corner points, and determine the solution that optimizes the objective function.

- 1) A company produces two types of shoes - casual, and athletic - at its two factories, Factory I and Factory II. Daily production of each factory for each type of shoe is listed below.

	Factory I	Factory II
Casual	100	200
Athletic	300	100

The company must produce at least 8000 pairs of casual shoes, and 9000 pairs of athletic shoes. If the cost of operating Factory I is \$1500 per day and the cost of operating Factory II is \$2000,

- how many days should each factory operate to complete the order at a minimum cost, and
- what is the minimum cost?

2) This quarter, a survey of 110 students at De Anza College finds that 60 take math, 50 take English, and 40 take history. Of these 25 take English and math, 20 take English and history, 20 take math and history, and 15 take all three subjects. Draw a Venn diagram and determine the following.

- The number of students taking math but not the other two subjects.
- The number of students taking English or math but not history.
- The number of students taking none of these subjects.

3) In how many different ways can five people be seated in a row if two of them insist on not sitting next to each other?

- 4) A team plays 15 games a season. How many ways are there to end up with 6 wins and 9 losses for the season .
- 5) A batch contains 10 transistors of which three are defective. If three are chosen, in how many ways can one get two defective?

