PRACTICE MATH 125 Exam # 3

① Graph the line $2x - 3y = 12$

② Graph the inequality $y \geq -\frac{2}{3}x + 5$

③ If you deposit \$500 into an account that gets 4% annual interest compounded monthly how much money would you have after 8 years?

- How much interest will you have made after 20 years?

④ If you have \$8000 to invest and you need it to be \$1200 in 15 years what simple interest rate would you need?

5. Chris has determined he needs to have $700,000 for retirement in 30 years. His account earns 5% interest.

a. How much would you need to deposit in the account each month?

b. How much total money will you put into the account?

c. How much total interest will you earn?

6. Consider the following investment scenario.

a. How much should you invest each month in order to have $600,000 if your rate of return is 4.7% compounded monthly and you want to achieve your goal in 40 years?

b. How much interest will you earn?

c. How much should you invest each month in order to have $600,000 if you want to achieve your goal in 20 years?

d. If you deposit the amount you need to achieve your goal in 20 years, how much will your savings be worth after 10 years?

7. Loren already knows that he will have $500,000 when he retires. If he sets up a payout annuity for 30 years in an account paying 10% interest, how much could the annuity provide each month?

8. Marie can afford a $250 per month car payment. She's found a 5 year loan at 7% interest.

a. How expensive of a car can she afford?

b. How much total money will she pay the loan company?

c. How much of that money is interest?

Solve each linear programming programing by graphing and then determining which vertex maximizes or minimizes the objective function.

9. Maximize $M = 7x + 9y$ subject

$x + 2y \leq 10$

$4x + y \leq 12$

$x \geq 0$

$y \geq 0$

10. A farmer has 10 acres to plant in wheat and rye. He has to plant at least 7 acres. However, he has only $1200 to spend and each acre of wheat costs $200 to plant and each acre of rye costs $100 to plant. Moreover, the farmer has to get the planting done in 12 hours and it takes an hour to plant an acre of wheat and 2 hours to plant an acre of rye. If the profit is $500 per acre of wheat and $300 per acre of rye how many acres of each should be planted to maximize profits?