MATH 111 – EXAM 1 – 23 MAY 2013

Answer all of the following questions in the space provided. Show all work as partial credit may be given. Answers without justification, even if they are correct, will earn no credit.

1. (10 pts. each)

   (a) Put the equation of the line $3x + 4y = 5$ in standard form. What is the slope of this line? What is its y–intercept? Find one other point on the line.

   (b) Find an equation of the line passing through the point $(1, 7)$ which has slope $2/3$.

   (c) Find an equation of the line passing through the points $(1, 3)$ and $(2, -1)$.

2. (10 pts.) The fee charged by a local moving company depends on the amount of time required for the move. If t hours are required, then the fee is $y = 35t + 20$ dollars. Give an interpretation of the slope and y-intercept of this line.

3. (10 pts.) Suppose that the supply curve for a certain commodity is given by $p = .005q + .5$ and the demand curve for the same commodity is $p = -.01q + 5$ where p is the price in dollars and q is the quantity in appropriate units. Determine the quantity of the commodity that will be produced and its selling price.

4. (10 pts.) Find the intersection point of the two lines $2x - 2y = -3$ and $5x - 4y = 1$ using any method you like. Be sure to show all work.

5. (10 pts. each) A bookstore sells the hardback version of a book for $20 and the paperback version for $5. Suppose that, at the end of a day, they discover that they have sold 90 books altogether and taken in a total of $675 dollars.

   (a) Set up a linear system of equations giving the number x of hardbacks and the number y of paperbacks sold.

   (b) How many hardbacks and paperbacks did the store sell?