MATH 108 – 27 MAY 1999 – EXAM 1

Answer each of the following questions. Show all work, as partial credit may be given.

1. (10 pts.) Find an equation for the line that passes through the points $(-1, 4)$ and $(2, 2)$ and sketch this line, clearly labelling at least 3 points on the line with their coordinates.

2. (10 pts.) Suppose that the total cost, C, of manufacturing x units of a certain commodity is given by $C(x) = x^2 - 10x + 50$. What is the cost of manufacturing the 10^{th} unit of the commodity?

3. (10 pts.) Find both the x and y–coordinates of the points of intersection of the curves given by $y = x^2 - x$ and $y = x + 3$.

4. (10 pts.) Suppose that a retailer is selling a product at 6 dollars per unit and is selling 300 units per month at that price. The retailer estimates that for each 1 dollar increase in price, he will sell 20 fewer units. Express the number of units the retailer will sell as a function of the price.

5. (10 pts.) Suppose that at a price of x dollars, a retailer can sell $400 - x$ units of the product and that the product costs the retailer 5 dollars per unit. Express the total profit, P, as a function of the selling price, x.