Math 122 (Section 11) **Quiz 6 Solutions** **Fall 2007**

1. Since $C(50) = 2000$ and $C'(50) = 35$, we know that the cost of producing 50 items is \$2000 and that at this production level, costs are increasing at \$35 per item. If costs continue to increase at this rate, then the cost of producing 52 items would be \$2070. Similarly the cost of producing 49 items would have been \$1965.

2. (a) At $q = 80$, marginal cost (MC) is greater than marginal revenue (MR) since the slope on the cost graph is greater than the slope on the revenue graph.

   (b) Increase production since $MR > MC$ at $q = 50$. In this case, the company will be increasing its profits.

   (c) Increase production since $MR > MC$ at $q = 20$. In this case, the company will be reducing its losses.

   (d) Maximum profit occurs at $q \approx 70$ where the profit is $R(70) - C(70) = \$7000 - \$4000 = \$3000$.

   (e) $MR = MC$ at $q \approx 70$ and $q \approx 8$. The company obtains its maximum profit at $q \approx 70$ and suffers its greatest loss at $q \approx 8$.