

M104, Practice Quiz 1 Solutions

This practice quiz does not count for points, but it is the model I'll follow for the real Quiz 1 on Wednesday, January 16, 2013. Please work out the problems in preparation for the class discussion on Monday, January 14.

- (1) (15 points) Suppose demand for a certain item equals supply at a unit price of \$50. If the item were to be priced at \$60 per item, do we expect that a shortage or a surplus will develop? Explain your answer (5 points for your answer and 10 points for an understandable explanation).

Solution: As price goes up we expect demand to fall (because it's more expensive so fewer people are willing to buy at that price) and supply to rise (because producers are more willing to increase production of the item if they can sell at a higher price). Thus at \$60 we expect less demand than at \$50 and more supply than at \$50, but we are given that demand equals supply at \$50 per item, so we expect demand to be less than supply at \$60 per item. Thus we expect a surplus to develop.

- (2) (15 points) If the marginal cost of producing an item is \$50 per item, and if the total cost of producing 10 items is \$700, what is the total cost of producing 100 items? Show how you obtain your answer (5 points for your answer and 10 points for showing your steps in an understandable way). Assume the cost function is of the form $C(x) = mx + b$.

Solution: We are given $C(x) = 50x + b$ and $C(10) = 700$. Thus $700 = C(10) = 50 * 10 + b$ or $700 = 500 + b$ so $b = 700 - 500 = 200$. This means $C(x) = 50x + 200$, so $C(100) = 50 * 100 + 200 = 5200$.