
 HOMEWORK # 4 ANSWERS

Note: this was Question 7.10 in the textbook!

(a) Since the owner of a car of quality $\theta=3$ values the car at \$2,400, when $P = \$1,700$ she will not be willing to sell. Hence the answer is No.

(b) The owner of a car of quality $\theta=1$ values it at \$800 and the owner of a car of quality $\theta=2$ values it at \$1,600. Hence both qualities will be **offered for sale**. Thus the buyer

faces the following lottery: $\left(\begin{array}{cc} \theta = 1 & \theta = 2 \\ \frac{3}{2}q & 1 - \frac{3}{2}q \end{array} \right)$ whose expected utility is:

$$\frac{3}{2}q\sqrt{9,025 - 1,700 + 1,000} + \left(1 - \frac{3}{2}q\right)\sqrt{9,025 - 1,700 + 2,000} =$$

$$136.86q + 96.57 - 144.85q = 96.57 - 7.99q$$

The buyer will be willing to buy if $96.57 - 7.99q \geq \sqrt{9025} = 95$, that is, if $q \leq 0.1965$.

So the answer is: Yes all the values of q less than or equal to 0.1965.

(c) No. If $q \leq 0.1965$ then both qualities $\theta=1$ and $\theta=2$ are traded and if $q > 0.1965$ then both qualities $\theta=1$ and $\theta=2$ are offered for sale, but buyers are not willing to buy.