1. (20) List the four properties of a price response function?

Nonnegative, continuous, differentiable, and downword sloping

1. (10) **Price elasticity** measures the responsiveness of the quantity demanded of a good to a change in its **\_price\_**.

It is computed as the **percentage** change in **\_demand\_** divided by the **\_percentage\_** change in **\_price\_ .**

1. (20) Why is the price elasticity for airline travel is 0.1 for the short-run and much higher (2.4 to be exact) for the long-run?

Because people prefer airlane travel in long term and do not buy short term tickets unless emergency, airlane travel have more price elasticity than short term.

1. (10) If *D* is maximum demand achievable and *p* denotes the price for an item, write down the linear price-response function *d(p)* in terms of of *D* and *p*?
2. (20) In basic price optimization, we try to maximize *m(p) = (p-c) \* d(p)* where *p* is unit price, *c* is unit cost and *d(p)* is the price-response function. What is the first derivative of *m(p)* with respect to price?
3. (20) A semiconductor manufacturer is selling 10000 chips per month at 10 cents per chip.
   1. What is the total monthly revenue of the manufacturer? **\_100000\_**
   2. If she increases the chip price by 20%, what is the new chip price? **\_\_12\_\_\_**
   3. Assume that the price elasticity of the chips is 1.5, what would be the percentage increase (or decrease) in the monthly demand if she increases the chip price by 20%? - decrease 30% in demand
   4. Based on your answers so far, what would be the new monthly revenue?

12\*7000 = 84000