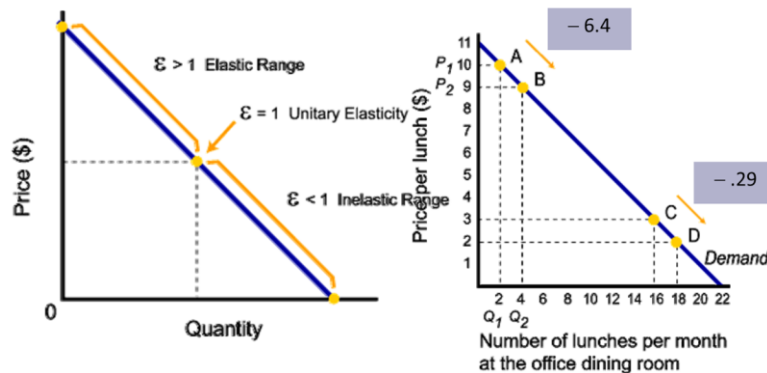


Tutorial 5 (ANSWERS) Elasticity

1. Answer the following with True or False and explain your answers briefly.
 - a. Elasticity along a straight line is constant since the slope and elasticity of a line is the same.

False: Elasticity and the slope of the line are not the same. The slope of the line is constant all throughout the line. However, because elasticity is a percentage change, on a straight line its value is greater on the top of the line compared to the bottom. It is unit elastic at the middle.

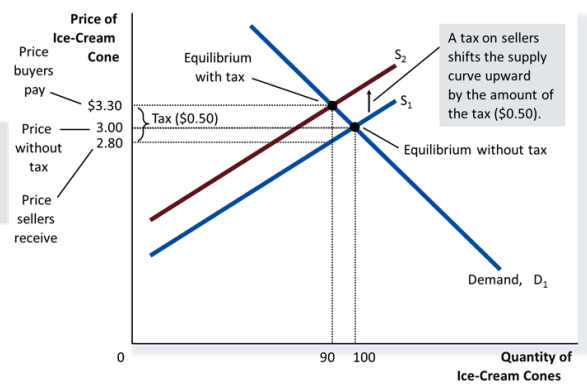
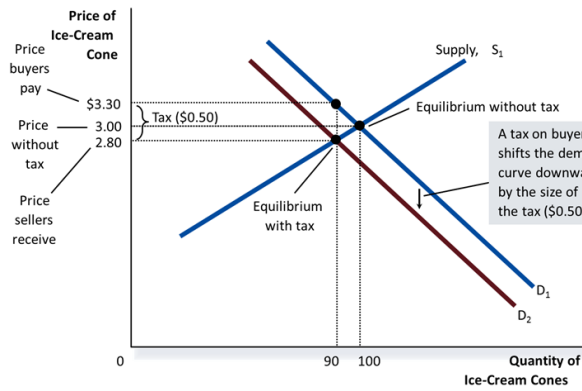


- b. When elasticity of demand is 3, this mean that demand is elastic and that a 30% change in the price of a good will result in a 10% change in the quantity demanded.

False: Although it is correct to say that the demand is elastic, the interpretation is incorrect. It should be interpreted as a 10% change in price would result in a 30% change in quantity demanded for the good.

- c. Demand will be more elastic if there are fewer substitutes.
False: Demand will be more inelastic with fewer substitutes as consumers would have less choice when prices change.
 - d. If government imposes a tax on purchases it will only be paid for by consumers. Suppliers will not share in paying for this tax.

False: Both buyers and sellers will pay for the tax whether it is a consumer or seller tax. The tax incidence will depend on which is more inelastic, demand or supply.

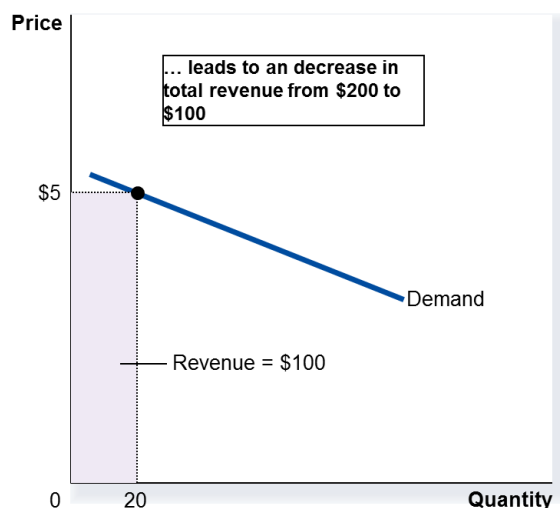
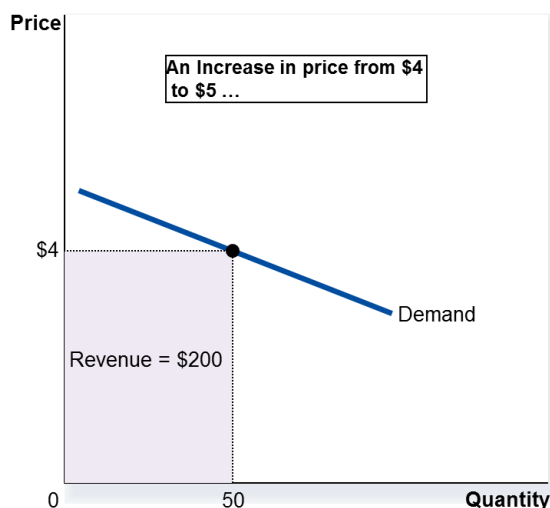


e. What is demand elasticity and what are its determinants?

Demand elasticity is the measure of the sensitivity of consumer demand quantity to changes in price of the good. Demand determinants include: the availability of substitutes, scope of the market, time period and whether goods and necessities or luxuries.

2. For each of the following values of price elasticity of demand, indicate whether it is elastic, inelastic, perfectly elastic, perfectly inelastic or unit elastic. In addition, determine what would happen to total revenue if a firm raise is price in each elasticity range identified.
 - a. $\epsilon_d = 2.5$ elastic ; Revenue would decrease when P is increased
 - b. $\epsilon_d = 1.0$ Unit Elastic ; Revenue will decrease by TR_0 ($\% \Delta P^2$) when P is increased
 - c. $\epsilon_d = \infty$ Perfectly Elastic ; Revenue will become 0 if P is increased
 - d. $\epsilon_d = 0.8$ Inelastic ; Revenue will increase when P is increased
3. Explain the relationship between the price elasticity of demand and total revenue.

Total revenue is the product of price and quantity. The changes in total revenue in relation to price changes depend on the elasticity of the demand. When demand is inelastic, increases in price results in an increase in total revenue because the resulting change in quantity demanded is proportionally smaller than the change in price. In an elastic demand, increases in price results in a decrease in total revenue because the resulting decrease in quantity demanded of the good is disproportionately larger than the change in price.



4. Assume that the starting price of a good is \$9 and at this price only 1 unit can be sold. Fill in values for each point listed in the following table. Describe the relationships you found from your calculations?

P (\$)	Q	Price Elasticity	Elasticity ϵ_d	Total Revenue	Relationship
8	2	100%/-11.1%	-9	16	Highly Elastic; Total Revenue almost doubles
7	3	50%/-12.5%	-4	21	Elastic; Total revenue increases by \$5
6	4	33.3%/-14.3%	-2.33	24	Elastic: Total revenue increases by \$2
5	5	25%/-16.7%	-1.5	25	Slightly Elastic ; Total revenue increase by 1
4	6	20%/-20%	-1	24	Unit elastic; Total revenue decreases by (20%X-20%X25) = -1
3	7	16.7%/-25%	-0.67	21	Inelastic ; Total revenue decreases by 3
2	8	14.3%/-33.3%	-0.43	16	Inelastic ; Total revenue decreases by 5

5. Calculate the income elasticity of demand for each of the following goods. Describe briefly the income elasticity of each good.

	Quantity demanded when income is \$10,000	Quantity Demanded When income is \$20,000	elasticity ϵ_i	Description
Good A	10	25	$150\%/100\% = 1.5$	<i>Good A and B are normal goods because their consumption increases with increasing income as shown by the positive income elasticity. However, Good A is more income elastic and thus would be more affected by changes in income. Good C is an inferior good that will be abandoned more as income increases.</i>
Good B	4	5	$25\%/100\% = 0.25$	
Good C	3	2	$-33.3\%/100\% = -0.33$	

6. Calculate the price elasticity of supply for each of the following combinations of price and quantity supplied. Determine whether supply is elastic, inelastic, perfectly elastic, perfectly inelastic, or unit elastic in each case.

- a. Price falls from \$2.25 to \$1.75; quantity supplied falls from 600 units to 400 units

$$\epsilon_s = 33.3\% / 22.2\% = 1.5 \text{ (Elastic Supply)}$$

- b. Price falls from \$2.25 to \$1.75; quantity supplied falls from 600 units to 500 units

$$\epsilon_s = 16.7\% / 22.2\% = 0.75 \text{ (Inelastic Supply)}$$

- c. Price falls from \$2.25 to \$1.75, quantity supplied remains at 600 units

$$\epsilon_s = 0 / 22.2\% = 0 \text{ (Perfectly Inelastic Supply)}$$

- d. Price increases from \$1.75 to \$2.25; quantity supplied increases from 466.67 units to 600 units.

$$\epsilon_s = 28.57\% / 28.57\% = 1 \text{ (Unitary Elastic Supply)}$$