Elasticity of Supply and Demand Problem Set Solutions

Principles of Microeconomics

August 6, 2025

1. (b)
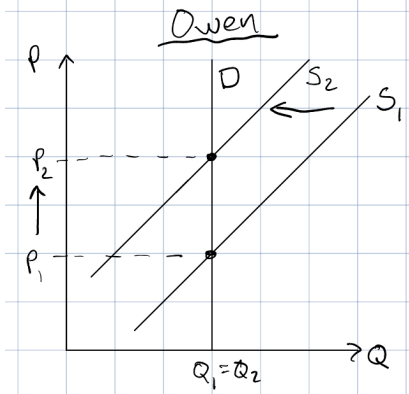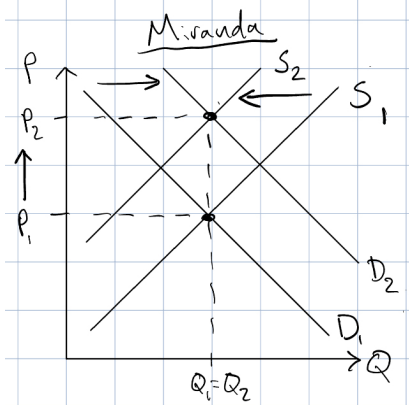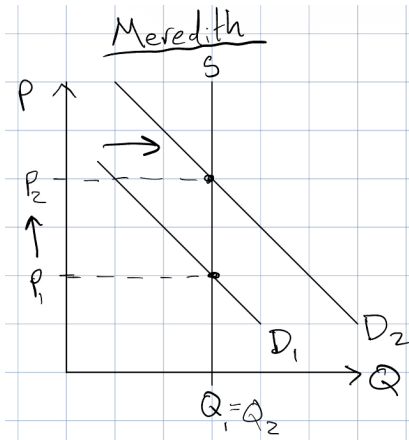
$$\%\Delta P = \frac{24 - 16}{\frac{24+16}{2}} = \frac{8}{20} = \frac{2}{5}$$

$$\%\Delta Q = \frac{110 - 90}{\frac{110+90}{2}} = \frac{20}{100} = \frac{1}{5}$$

$$\text{Price Elasticity of Supply} = \frac{\%\Delta Q}{\%\Delta P} = \frac{1}{2} = 0.5.$$

2. (c) – If the price elasticity of supply is zero, that means the supply curve is perfectly inelastic, and perfectly inelastic supply is vertical.

3. (c) – The ability of firms to enter and exit a market in the long run gives sellers more flexibility to change the amount they produce, so it makes the supply curve more elastic.

4.

Meredith

P (vertical axis), Q (horizontal axis)

S — vertical supply line

P_2, P_1 marked on vertical axis

D_1, D_2 demand curves

$Q_1 = Q_2$

Miranda

P (vertical axis), Q (horizontal axis)

S_2, S_1 supply curves

P_2, P_1 marked on vertical axis

D_2, D_1 demand curves

$Q_1 = Q_2$

Owen

P (vertical axis), Q (horizontal axis)

D — vertical demand line

S_2, S_1 supply curves

P_2, P_1 marked on vertical axis

$Q_1 = Q_2$

5. (a)

$$\%\Delta Q = -0.043$$
$$\%\Delta P = \frac{1.5 - 1.25}{\frac{1.5+1.25}{2}} = \frac{0.25}{1.375} \approx 0.18$$
$$\eta = \left| \frac{\%\Delta Q}{\%\Delta P} \right| \approx 0.24$$

(b) Based on my estimate, demand for subway rides is inelastic, so when the Transit Authority raises fares, we should expect revenue to increase. That's because quantity demanded will decrease proportionately less than fares will increase.

(c) The estimate might be unreliable because there could be other reasons for the decrease in ridership in December. For example, it's possible that so many people take vacation in December that subway ridership drops significantly. (This question doesn't test anything we've learned. It's just a common sense question that hints at econometrics, a statistics course you'll take in college if you choose to major in economics.)

6. It depends on the price elasticity of demand for museum admission. If demand is elastic, the museum should decrease the price of admission because the quantity of admits will increase proportionately more than the drop in price. If demand is inelastic, the museum should increase the price of admission because the quantity of admits will decrease proportionately less than the increase in price. I imagine demand for museum admission is elastic because it's a highly substitutable activity.