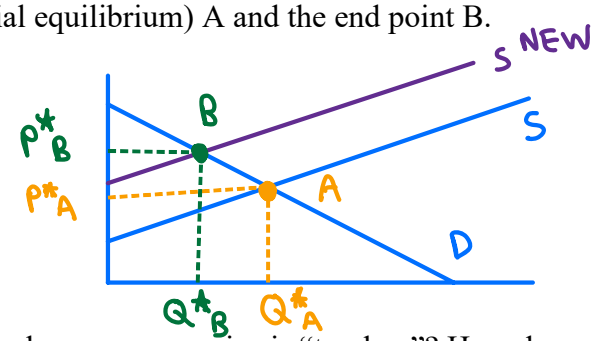
# ECON 101
# TA Worksheet, Modules 4 & 5 (Markets, Equilibrium, and Elasticity)

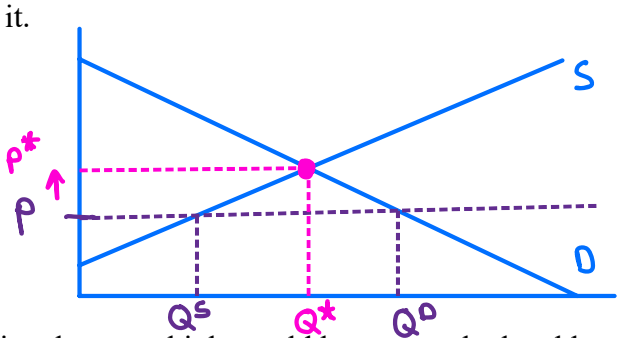
Name:_____
TA:_____

Module 4: Markets and Equilibrium

1. Show what happens to our Supply and Demand model when input prices rise. Label the starting point (initial equilibrium) A and the end point B.




2. What do we mean when we say a price is "too low"? How does a market respond to this scenario? Draw it.

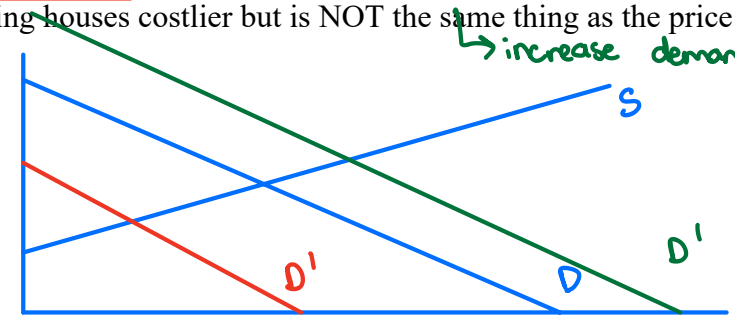



at too low of a price $Q^S < Q^D$.
The market raises the price s.t. QS↑ and QD↓ until $Q^S = Q^D = Q^*$ at $P^* > P$

3. Draw and explain what you think would happen to the local housing market as interest (mortgage) rates rise AND local companies increase hiring. (Note: higher mortgage rates make buying houses costlier but is NOT the same thing as the price of the house.)

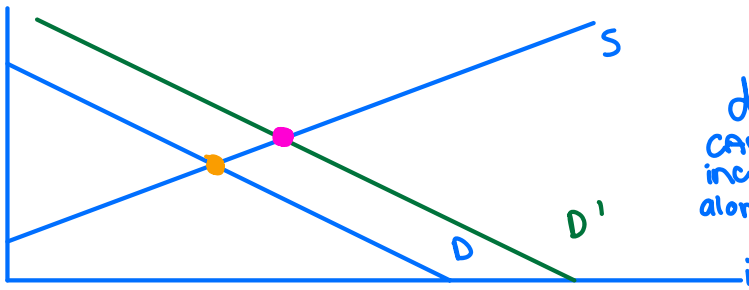
decrease demand

↳ increase demand




opposing forces on demand allow for any outcome. If the effect of hiring outweighs the effect of rates, demand shifts out. If visa versa, demand shifts in.

4. What's wrong with this statement? "Demand increased so supply must increase (shift out) too since people want to buy more."




demand shifts DO NOT CAUSE supply shifts. Demand increased so we move along the supply curve, to the new equilibrium increasing QUANTITY SUPPLIED

5. Suppose Qd = 20 − 2P and Qs = P − 4

a. Solve the system for P and Q

$Q_d = 20 - 2P$, $Q_s = P - 4$, at equilibrium: $Q_d = Q_s$

$20 - 2P = P - 4$

$+2P \quad +2P$

$20 = 3P - 4$

$+4 \quad +4$

$\frac{24}{3} = \frac{3P}{3} \rightarrow \boxed{P = 8}$

$Q_s = P - 4 = 8 - 4 = 4$

$Q_d = 20 - 2P = 20 - 2(8) = 4$

$\boxed{Q = 4}$

b. Graph the system below (don't forget to solve for P to make it easier). Show the equilibrium point.

$Q_d = 20 - 2P$

$-20 \quad -20$

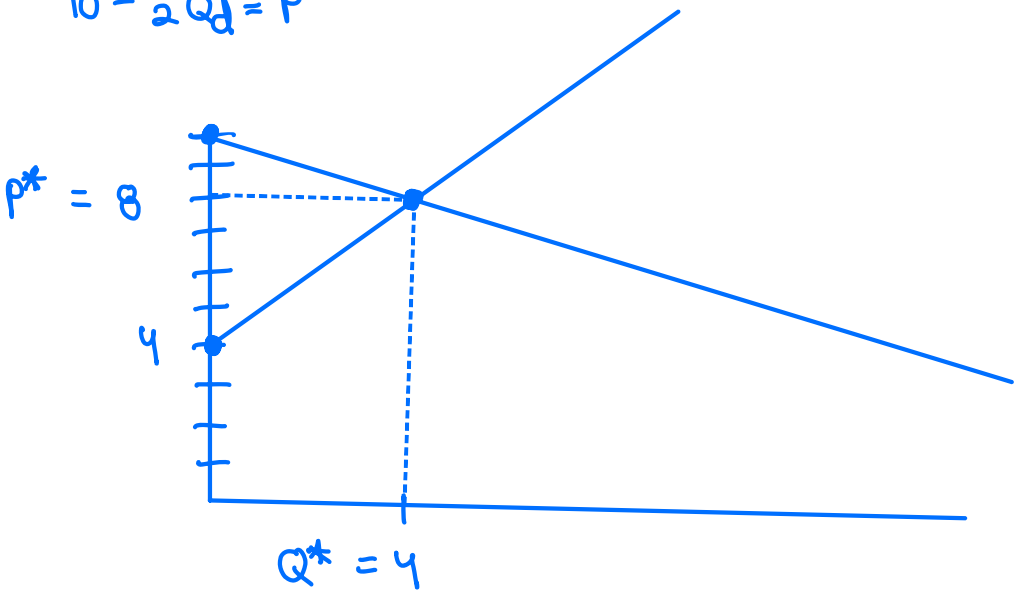
$\frac{Q_d - 20}{-2} = \frac{-2P}{-2}$

$10 - \frac{1}{2}Q_d = P$

$Q_s = P - 4$

$+4 \quad +4$

$P = Q_s + 4$



# ECON 101
# TA Worksheet, Module 5 (Elasticity)

Name:_____
TA:_____

Module 5: Elasticity

6. Think of some goods you buy that (for you) have very inelastic demand. Why is your demand inelastic for these products?

medication, my favorite food, my phone bill

I am not reactive to price changes in these products because my taste / need for them is so strong + there are no close substitutes

7. My son, Levi, wanted to sell lemonade on the sidewalk by our house. I told him he had to charge $1 per cup. After selling 10 cups he got tired and gave up. The next day I said he could charge $2 per cup. That day he decided to stay out longer and sold 30 cups. Using this info, what can we calculate? What number do we get? PES

$$\frac{\frac{30-10}{30+10}}{\frac{2-1}{2+1}} = \frac{\frac{20}{40}}{\frac{1}{3}} = \frac{1}{2}\cdot\frac{3}{1} = 1.5$$

$\varepsilon_p = 1.5$

8. Suppose we have this demand curve: Q = 20 − 0.5P. What is the price elasticity of demand if the price falls from 6 to 4?

$Q = 20 - \frac{1}{2}P$

$Q = 20 - \frac{1}{2}(6) = 20 - 3 = 17$

$Q = 20 - \frac{1}{2}(4) = 20 - 2 = 18$

$$\left|\frac{\cdot1\cdot\Delta QD}{\cdot1\cdot\Delta P}\right| = \left|\frac{\frac{18-17}{18+17}}{\frac{4-6}{4+6}}\right| = |-0.142|$$

$\varepsilon_p = 0.142$

9. Suppose two goods are PERFECT complements (you never buy one without buying the other). How does the cross-price elasticity of demand relate to the products' PRICE elasticity of demand?

$$\frac{\cdot1\cdot\Delta QD(x)}{\cdot1\cdot\Delta P(x)} \;?\; \frac{\cdot1\cdot\Delta QD(y)}{\cdot1\cdot\Delta P(x)}$$

$\downarrow$

$=$

They are equal! The $\Delta P(x)$ affects $QD(x)$ in the same way it affects $QD(y)$ since $QD(x) = QD(y)$

10. At a price of $12/dozen, Doug's 'Nuts sells 100 dozen doughnuts. At a price of $8/dozen Doug's would sell 200 dozen. Is demand elastic or inelastic?

$$\left| \frac{\frac{200-100}{200+100}}{\frac{8-12}{8+12}} \right| = \left| \frac{\frac{1}{3}}{\frac{-4}{20}} \right|$$

$$= \left| \frac{\frac{1}{3}}{\frac{-1}{5}} \right|$$

$$= \frac{5}{3}$$

$\frac{5}{3} > 1 \Rightarrow$ elastic demand