Econ 1100
Professor Lise Vesterlund

Name:________________
Group members:________
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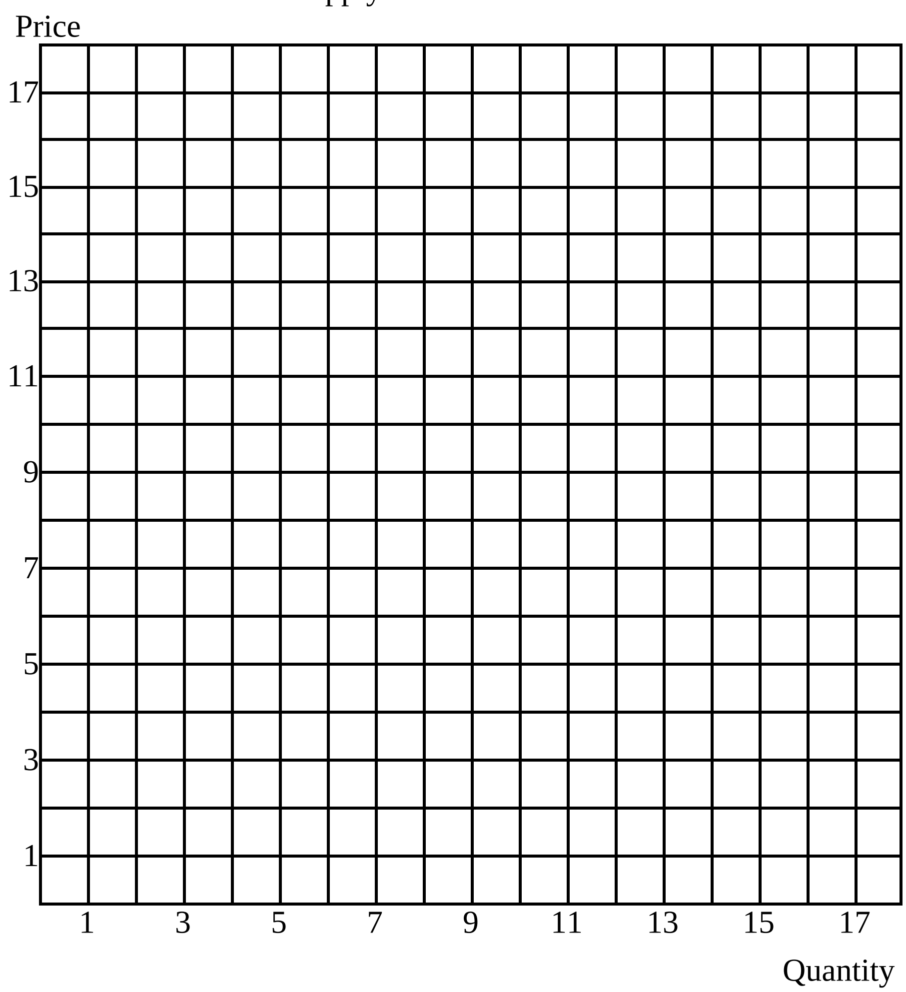
Problem Set 5
Due Thursday November 5

<u>Ch. 16 Equilibrium</u>

1. Suppose the market demand is given by the equation $q_D = 16 - p_D$, and the market supply by the equation $q_S = -0.5 + 0.5\ p_S$.

a. Draw a picture of the demand and supply curve



b. Determine the equilibrium quantity and price?

c. Calculate the consumer and producer surplus at the predicted equilibrium

d. Calculate the price elasticity of demand at the predicted equilibrium. Is demand elastic/unit elastic/ inelastic at the equilibrium price?

e. Calculate the price elasticity of supply at the predicted equilibrium. Is supply elastic/unit elastic/ inelastic at the equilibrium price?

f. Suppose a quantity tax of $3 was imposed on the sellers. Determine the new equilibrium quantity as well as the price the buyers will pay and the price the sellers will receive.

g. What is the ratio of the tax imposed on the buyers relative to that on the sellers t_D/t_S? Use your answer to 1.d. and 1.e. to provide a verbal explanation for the size of this ratio

h. Calculate the tax revenue, change in consumer and producer surplus as well as deadweight loss associated with the tax.

i. Determine the equilibrium when instead of imposing the $3 tax on the seller we impose the $3 tax on the buyers.

j. Based on the predicted equilibrium - do sellers prefer that the tax is imposed on the buyers or on the sellers? Explain.

Ch. 22 Firm Supply

Problem 2. A competitive firm has a short run cost function $c(y)=0.5\ y^2+2y+10$

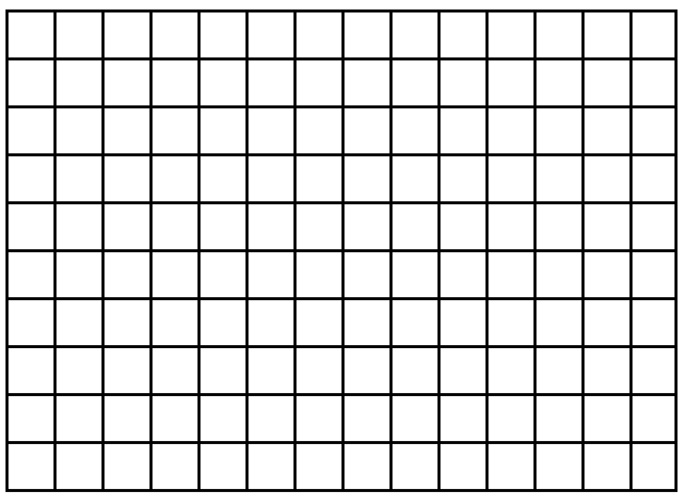
a. What is firm's fixed cost of production?

b. What is the firm's variable cost?

c. What is the firm's average variable cost?

d. What is the firm's marginal cost?

e. Illustrate the firms marginal cost, average variable cost, and supply curves in the graph below (be sure to label the axis)



f. If the market price is \$8 how much does the firm choose to produce? What are the associated revenue, costs and profit of production?

g. If the market price is $4 how much does the firm choose to produce? What are the associated revenue, costs and profit of production?

h. If the market price is $1 how much does the firm choose to produce? What are the associated revenue, costs and profit of production?