

DISCUSSION QUESTION

Name:

Instructor:

Course:

Stores that buy gold from individuals generally offer a flat price per ounce of gold. Thousands of these stores around the nation offer similar and sometimes identical prices for gold.

- a) Individuals who sell their gold have little ability to negotiate higher prices with these stores. Why do sellers have very little to no bargaining power in this market?

- b) What would likely happen to the market price of gold if an individual who owns 100 ounces of gold sells his gold in the market? What would likely happen to market price of gold if a single firm that buys gold were to go out of business?

- c) What happens to the quantity supplied of gold when the market price of gold rises, other factors held constant? Why does this happen?

PEER GROUP PROBLEM SOLVING

Name:

Instructor:

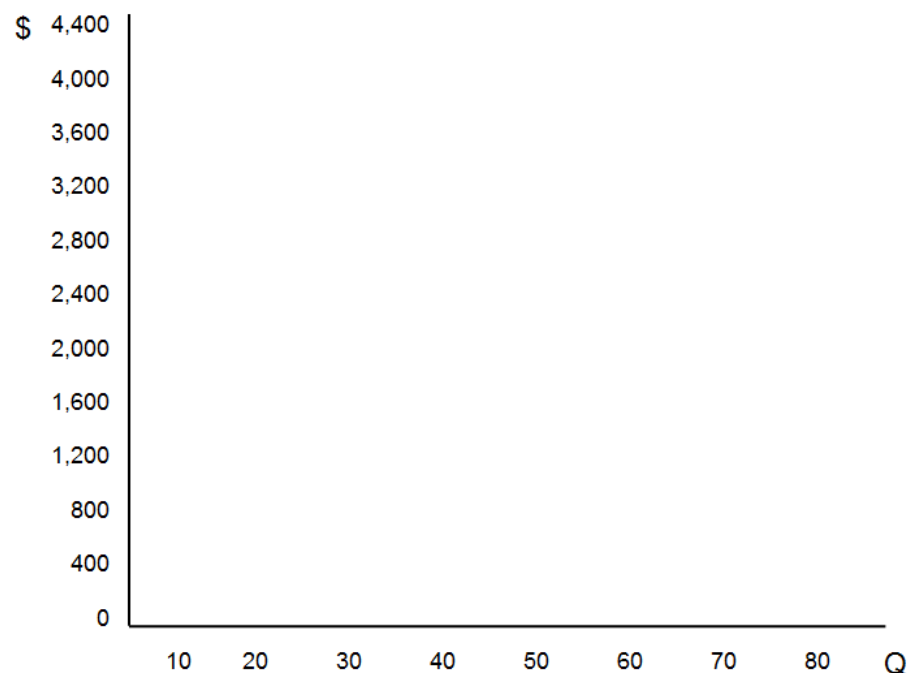
Course:

The table below represents a perfectly competitive firm. The firm faces a constant price of \$60.

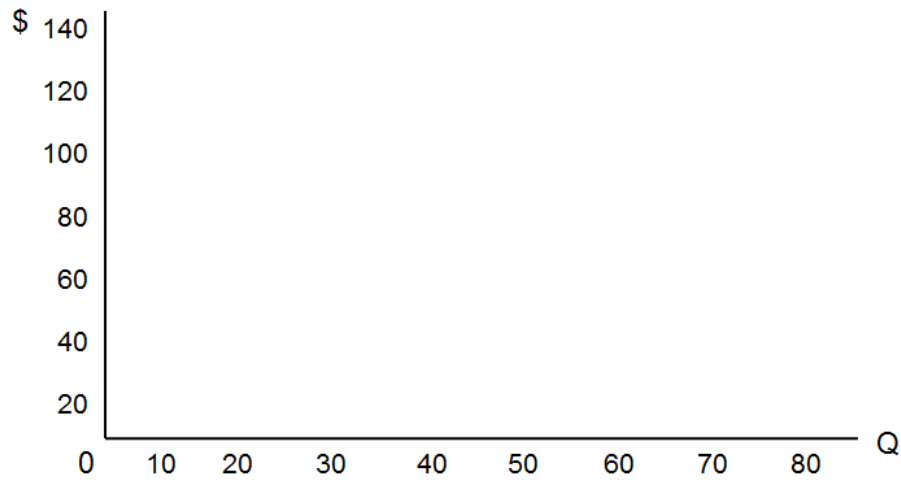
a) Fill in all the blanks in the table below. (Note: Q = Quantity, FC = Fixed Cost, VC = Variable Cost, TC = Total Cost, MC = Marginal Cost, AVC = Average Variable Cost, ATC = Average Total Cost, AFC = Average Fixed Cost, TR = Total Revenue, and MR = Marginal Revenue).

Q	FC	VC	TC	MC	AVC	ATC	AFC	TR	MR
0		\$0	\$200	--	--	--	--		--
10			\$500						
20			\$600						
30		\$600							
40		\$900							
50			\$1,600						
60			\$2,200						
70		\$3,000							
80				\$130					

b) On the following set of axes, graph this firm's total revenue and total cost curves. The price is \$60.



c) On this set of axes, graph this firm's marginal revenue, marginal cost and average total cost curves.



d) Explain what is true of total revenue and total costs at the profit maximizing quantity.

e) Explain what is true of marginal revenue and marginal cost at the profit maximizing quantity.

IN-CLASS EXPERIMENT / ACTIVE EXERCISE

Have students form groups of 3 or 4. Then consider the following business scenario and answer the following questions:

Suppose you run a business that produces high end dog food. Your business produces 3,000 dog food cans per day, and can sell all cans at \$2.00/can regardless of how much is produced. Your firm currently employs twenty workers, each of whom earns \$12/hour and work 8 hours per day. Your inputs, like the meat for the food and the metal for the can, cost \$1.00/can. Your overhead expenses, including rent, property taxes, insurance, etc., which does not vary with the number of cans produced, equals \$250 per day.

- a) Calculate your company's current daily profit.

You must decide whether or not to produce additional cans. To produce more you would need to hire additional workers, all of whom will be paid \$12/hour. Material costs remain constant at \$1.00/can and you could sell all additional cans at \$2.00/can. You determine that if you hire a 21st employee, your firm would produce an additional 200 cans per day, and that the number of additional cans from each additional worker would be decreasing by 30 (so a 22nd employee could produce an additional 170 cans per day, a 23rd employee could produce an additional 140 cans per day, etc.).

- b) Calculate the marginal costs associated with producing additional cans for employees 21 to 25.
- c) How many employees should your firm hire, how many cans will you produce, and what is your company's daily profit?
- d) Suppose your fixed costs were \$350 per day instead of \$250 per day. What is the profit maximizing number of employees and what is your company's daily profit?

SOLUTIONS AND INSTRUCTOR NOTES

Discussion Question

Stores that buy gold from individuals generally offer a flat price per ounce of gold. Thousands of these stores around the nation offer similar and sometimes identical prices for gold.

- a) Individuals who sell their gold have little ability to negotiate higher prices with these stores. Why do sellers have very little to no bargaining power in this market?

The market for gold meets the conditions of a perfectly competitive market: there are a large number of buyers and sellers and it is a homogeneous good. The price offered per ounce of gold is based on the market price for gold, which is not something an individual seller or buyer can influence.

- b) What would likely happen to the market price of gold if an individual who owns 100 ounces of gold sells his gold in the market? What would likely happen to market price of gold if a single firm that buys gold were to go out of business?

The market price for gold would remain the same. Because there are thousands of sellers and buyers of gold, no individual seller or buyer can influence the market price.

- c) What happens to the quantity supplied of gold when the market price of gold rises, other things constant? Why does this happen?

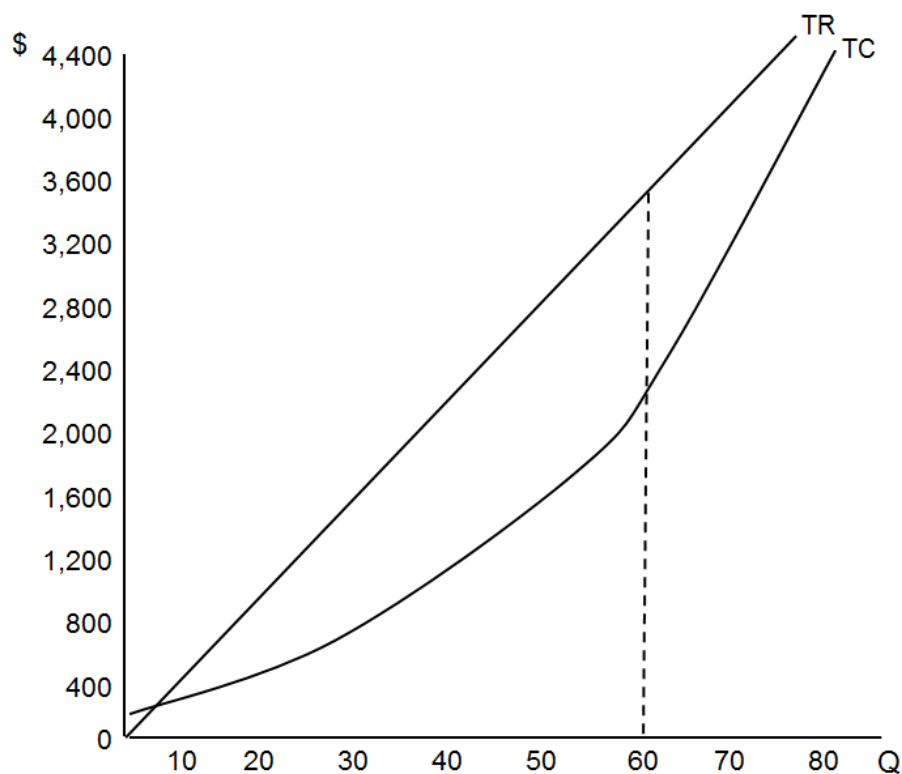
The quantity supplied would rise. The reason is based on the law of supply – as price rises, it exceeds the reservation prices (minimum willingness to sell) for a larger number of units, so a higher quantity is supplied.

Peer Group Problem Solving

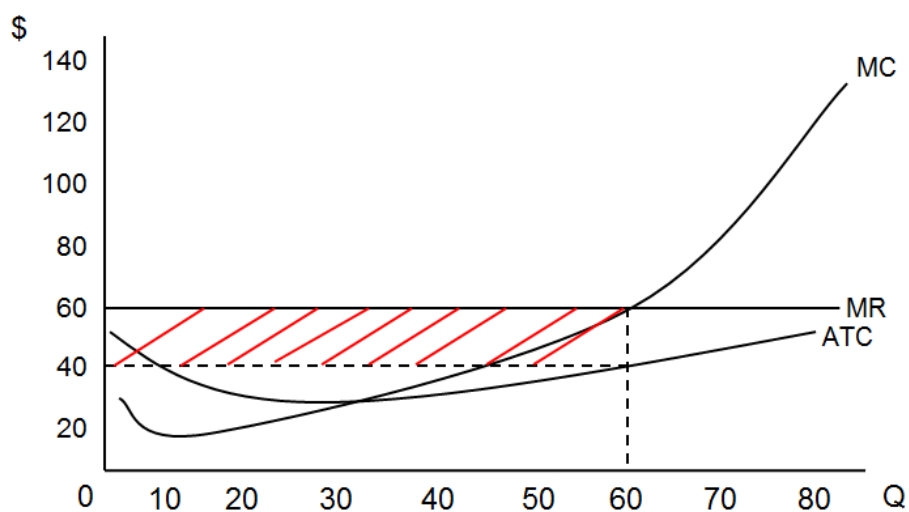
- a) Fill in all the blanks in the table below.

Q	FC	VC	TC	MC	AVC	ATC	AFC	TR	MR
0	\$200	0	\$200	--	--	--	--	0	--
10	\$200	\$300	\$500	\$30	\$30	\$50	\$20	\$600	\$60
20	\$200	\$400	\$600	\$10	\$20	\$30	\$10	\$1,200	\$60
30	\$200	\$600	\$800	\$20	\$20	\$26.7	\$6.7	\$1,800	\$60
40	\$200	\$900	\$1,100	\$30	\$22.5	\$27.5	\$5	\$2,400	\$60
50	\$200	\$1,400	\$1,600	\$50	\$28	\$32	\$4	\$3,000	\$60
60	\$200	\$2,000	\$2,200	\$60	\$33.3	\$36.7	\$3.33	\$3,600	\$60
70	\$200	\$3,000	\$3,200	\$100	\$42.9	\$45.7	\$2.9	\$4,200	\$60
80	\$200	\$4,300	\$4,500	\$130	\$53.8	\$56.3	\$2.5	\$4,800	\$60

b) On the following set of axes, graph this firm's total revenue and total cost curves.



c) On this set of axes graph this firm's marginal revenue and marginal cost curves.



d) Explain what is true of total revenue and total costs at the profit maximizing quantity.

The gap between total revenue and total cost is at its largest (or total revenue is the furthest above total costs) at the profit maximizing quantity.

- e) Explain what is true of marginal revenue and marginal cost at the profit maximizing quantity.

Marginal revenue equals marginal cost at the profit maximizing quantity.

In-Class Experiment/Active Exercise

Suppose you run a business that produces high end dog food. Your business produces 3,000 dog food cans per day, and can sell all cans at \$2.00/can regardless of how much is produced. Your firm currently employs twenty workers, each of whom earns \$12/hour and work 8 hours per day. Your inputs, like the meat for the food and the metal for the can, cost \$1.00/can. Your overhead expenses, including rent, property taxes, insurance, etc., which does not vary with the number of cans produced, equals \$250 per day.

- a) Calculate your company's current daily profit.

$$\begin{aligned} \text{Profit} &= TR - TC \\ TR &= \$2 \times 3,000 = \$6,000 \\ TC &= \text{Labor costs} + \text{material costs} + \text{fixed costs} \\ &= (\$12 \times 8 \times 20) + (\$1.00 \times 3,000) + \$250 \\ &= \$1,920 + \$3,000 + 250 \\ &= \$5,170 \\ \text{Profit} &= \$6,000 - \$5,170 = \$830 \end{aligned}$$

You must decide whether or not to produce additional cans. To produce more you would need to hire additional workers, all of whom will be paid \$12/hour. Material costs remain constant at \$1.00/can and you could sell all additional cans at \$2.00/can. You determine that if you hire a 21st employee, your firm would produce an additional 200 cans per day, and that the number of additional cans from each additional worker would be decreasing by 30 (so a 22nd employee could produce an additional 170 cans per day, a 23rd employee could produce an additional 140 cans per day, etc.).

- b) Calculate the marginal costs associated with producing additional cans for employees 21 to 25.

$$\begin{aligned} \text{Employee 21} &- \text{change to } Q = 200; \text{ change to } TC = \$296; MC = \$296/200 = \$1.48 \\ \text{Employee 22} &- \text{change to } Q = 170; \text{ change to } TC = \$266; MC = \$266/170 = \$1.56 \\ \text{Employee 23} &- \text{change to } Q = 140; \text{ change to } TC = \$236; MC = \$236/140 = \$1.69 \\ \text{Employee 24} &- \text{change to } Q = 110; \text{ change to } TC = \$206; MC = \$206/110 = \$1.87 \\ \text{Employee 25} &- \text{change to } Q = 80; \text{ change to } TC = \$176; MC = \$176/80 = \$2.20 \end{aligned}$$

- c) How many employees should your firm hire, how many cans will you produce, and what is your company's daily profit?

You should hire 22 employees and produce an additional 370 cans (3370 total). This is the point where MR=MC.

Your daily profit is now

$$TR = 3,370 \times \$2 = \$6,740$$

$$\begin{aligned} TC &= (22 \times \$12 \times 8) + \$1 \times 3,370 + \$250 \\ &= \$2,112 + \$3,370 + \$250 \\ &= \$5,732 \end{aligned}$$

$$\text{Profit} = \$6,740 - \$5,732 = \$1,008$$

- d) Suppose your fixed costs were \$350 per day instead of \$250 per day. What is the profit maximizing number of employees and what is your company's daily profit?

Fixed costs will not influence the profit maximizing quantity, so that remains the same. However, your profit will be reduced to \$842 because your total costs are \$100/day.

For more in-class experiment and active learning ideas, visit www.econedactive.com.