



Microeconomics Unit 3

Free Response Questions

FRQ #1- The table below shows the short-run total cost function for a typical firm in a perfectly competitive market. See video in [Ultimate Review Packet](#) for detailed explanations.

Quantity	0	1	2	3	4	5	6
Total Cost	\$20	\$30	\$34	\$42	\$52	\$72	\$107

- (a) Identify the dollar value of the firm's total fixed cost. **\$20. The total cost of producing zero units is \$20.**
- (b) Calculate each of the following.
- The average total cost of producing 4 units. **$\$13 = \$52/4$. ATC equals total cost divided by quantity.**
 - The average variable cost of producing 2 units. **$\$7 = \$14/2$. AVC equals variable cost divided by quantity. The total variable cost of 2 units is \$14 since fixed cost is \$20 and the total cost is \$34.**
- (c) Complete the following assuming that the price of the product is \$25.
- Identify the firm's profit-maximizing quantity. Explain how you determined your answer. **5 units. This is where $MR=MC$. The firm wouldn't produce 6 since the MC is greater than the MR when 6 units are produced.**
 - Calculate the firm's profit or loss at the profit maximizing quantity. Show your work. **$\$53 = \$125 - \$72$. The total revenue for producing 5 units is \$125 (5 units times \$25) and the total cost is \$72.**
- (d) Based on your answers in part (c) (ii), explain what will happen to the number of firms in the industry in the long run. **The number of firms will increase since other firms will enter the market since the firm is earning profit. Perfectly competitive firms have low barriers to entry so firms can easily enter the market.**
- (e) If the price of the product fell to \$6, should this firm shut down in the short run? Explain. **The firm should shut down in the short run. At a \$6 price the profit maximizing quantity is 2 units. If the firm produced 2 units they would make a loss of \$22 which is greater than the firm's fixed cost of \$20. It is better for the firm to shut down and make a \$20 loss instead of produce and make a \$22 loss. Also, at 2 units the price is below the AVC. The firm should shut down.**

FRQ #2- Assume that avocados are produced in a constant-cost perfectly competitive market and that Antonio is a typical avocado farmer earning zero economic profit. Also assume that avocados are used to produce guacamole.

- (a) If Antonio raises the price of his avocados, what will happen to his total revenue? Explain. **Antonio's revenue will decrease and become \$0. This is a perfectly competitive market so Antonio is a price taker. If he raises his price, no customers will buy from him.**
- (b) Draw correctly labeled side-by-side graphs for the avocado market and Antonio's firm. **See graph.**
- (c) Assume that the demand for guacamole decreases. On your graphs in part (b) show what will happen to each of the following in the short run. **See graph.**
- (d) Relative to P_1 , will the market equilibrium price increase, decrease, or stay the same in the long run? Explain. **The price will increase since firms will leave since they are making a loss.**
- (e) Identify what will happen to each of the following if there is an increase in the demand for guacamole.
- The market price and quantity of avocados in the long run. Explain. **Price will stay the same and the quantity will increase. In the short run the price will increase, but firms will enter in the long run causing the price to return to the original equilibrium. The quantity for the market will increase since both demand and supply will increase.**
 - The price and quantity of Antonio's avocados in the short run. **Price and quantity will increase in the short run.**

