

SHORT ANSWER. Show your steps in answering the following

- 1) The demand equation for a monopolist's product is $p = 2700 - q^2$, where p is the price per unit (in dollars) when q units are demanded.
 - (a) Find the value of q for which revenue is maximum.
 - (b) What is the maximum revenue?
- 2) The demand equation for a monopolist's product is $p = \frac{10,000}{q^2 + 25}$, where p is the price per unit (in dollars) when q units are demanded.
 - (a) Determine the value of q for which revenue is maximum.
 - (b) What is the maximum revenue?
- 3) A manufacturer found that the total cost c of producing q units of a product is given by $c = 0.02q^2 + 2q + 800$. At what level of production will average cost be a minimum?
- 4) The demand equation for a monopolist's product is $p = 200 - 0.98q$, where p is the price per unit (in dollars) of producing q units. If the total cost c (in dollars) of producing q units is given by $c = 0.02q^2 + 2q + 8000$, find the level of production at which profit is maximized.
- 5) The demand function for a monopolist's product is $p = 100 - 3q$, where p is the price per unit (in dollars) for q units. If the average cost AC (in dollars) per unit for q units is $AC = 4 + \frac{100}{q}$, find the output q at which profit is maximized.
- 6) A company owns an apartment building containing 80 units. If the company charges \$300 per month rent, then all units can be rented out, and for every increase of \$10 per month in rent, the company will lose one customer. What rent should be charged to maximize revenue?

MULTIPLE CHOICE. Choose the one alternative that best answers the question.

- 7) The demand equation for a monopolist's product is $p = \frac{500}{\sqrt{q}}$, where p is the price per unit (in dollars) for q units. If the total cost c (in dollars) of producing q units is given by $c = 5q + 2000$, then the level of production at which profit is maximized is

A) 50 units.	B) 100 units.	C) 750 units.	D) 1235 units.	E) 2500 units.
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- 8) A manufacturer has determined that the total cost c of producing q units of a product is given by $c = 0.04q^2 + 4q + 6400$. Average cost will be a minimum at a production level of
 - A) 100 units.
 - B) 200 units.
 - C) 400 units.
 - D) 800 units.
 - E) none of the above

Answer Key

Testname: 2012-ECON_APPS_ONE_VAR_MAX-MIN

- 1) (a) 30 (b) \$54,000
- 2) (a) 5 (b) \$1,000
- 3) 200 units
- 4) 99 units
- 5) 16
- 6) \$550
- 7) E
- 8) C