Economics 101

Spring 2020

Quiz #7 with Answers

1. Consider a perfectly competitive industry that can be described by the following equations where P is the price per unit, Q is the number of units produced in the market, and q is the number of units produced by a representative firm. Assume that all firms are identical.

Market Demand Curve for the good: P = 1000 – 2Q

Market Supply Curve for the good: P = 200 + (1/2)Q

Total Cost for the Representative Firm: TC = 4q2 + 200q + 100

Marginal Cost for the Representative Firm: MC = 8q + 200

Given this information and holding everything else constant, what is the equilibrium price in this market and the equilibrium quantity in this market if the market is in short-run equilibrium?

1. b. Equilibrium price is $400 per unit of the good; equilibrium quantity is 200 units of the good
2. c. Equilibrium price is $320 per unit of the good; equilibrium quantity is 360 units of the good
3. Equilibrium price is $360 per unit of the good; equilibrium quantity is 320 units of the good
4. d. Equilibrium price is $200 per unit of the good; equilibrium quantity is 400 units of the good

2. Consider a perfectly competitive industry that can be described by the following equations where P is the price per unit, Q is the number of units produced in the market, and q is the number of units produced by a representative firm. Assume that all firms are identical.

Market Demand Curve for the good: P = 1000 – 2Q

Market Supply Curve for the good: P = 200 + (1/2)Q

Total Cost for the Representative Firm: TC = 4q2 + 200q + 100

Marginal Cost for the Representative Firm: MC = 8q + 200

Given this information and holding everything else constant, how many firms are in this market in the short-run?

1. b. 12 firms are in this market in the short run.
2. 20 firms are in this market in the short run.
3. 76 firms are in this market in the short run.
4. 16 firms are in this market in the short run.

3. Consider a perfectly competitive industry that can be described by the following equations where P is the price per unit, Q is the number of units produced in the market, and q is the number of units produced by a representative firm. Assume that all firms are identical.

Market Demand Curve for the good: P = 1000 – 2Q

Market Supply Curve for the good: P = 200 + (1/2)Q

Total Cost for the Representative Firm: TC = 4q2 + 200q + 100

Marginal Cost for the Representative Firm: MC = 8q + 200

Given this information and holding everything else constant, what is the breakeven price for a representative firm in this market?

a. $240 per unit of the good

b. $360 per unit of the good

c. $200 per unit of the good

d. $400 per unit of the good

4. Consider a perfectly competitive industry that can be described by the following equations where P is the price per unit, Q is the number of units produced in the market, and q is the number of units produced by a representative firm. Assume that all firms are identical.

Market Demand Curve for the good: P = 1000 – 2Q

Market Supply Curve for the good: P = 200 + (1/2)Q

Total Cost for the Representative Firm: TC = 4q2 + 200q + 100

Marginal Cost for the Representative Firm: MC = 8q + 200

Given this information and holding everything else constant, what is the level of profits for a representative firm in the short run?

1. b. Profit for a representative firm = (240)(20) – [4(20)(20) + (200)(20) + 100]
2. Profit for a representative firm = (360)(20) – [4(20)(20) + (200) (20) + 100]
3. Profit for a representative firm = (240)(5) – [4(5)(5) + 200(5) + 100]
4. Profit for a representative firm = (360)(5) – [4(5)(5) + 200(5) + 100]

5. Consider a perfectly competitive industry that can be described by the following equations where P is the price per unit, Q is the number of units produced in the market, and q is the number of units produced by a representative firm. Assume that all firms are identical.

Market Demand Curve for the good: P = 1000 – 2Q

Market Supply Curve for the good: P = 200 + (1/2)Q

Total Cost for the Representative Firm: TC = 4q2 + 200q + 100

Marginal Cost for the Representative Firm: MC = 8q + 200

Given this information and holding everything else constant, how many firms are in this market in the long run? For this question assume there are no changes in the market demand curve.

1. b. 16 firms are in this market in the short run.
2. 80 firms are in this market in the short run.
3. 76 firms are in this market in the short run.
4. 60 firms are in this market in the short run.