

1. A price-taking firm produces a commodity that sells at price p . The firm's cost function is:

$$c(q) = q^2$$

- Write down the firm's supply curve.
 - Draw the supply curve.
 - What quantity of output will the firm produce if the price is 10?
 - What is the profit when price is 10?
-

2. A price-taking firm produces a commodity that sells at price p . The firm's cost function is:

$$c(q) = 5 + 5q + q^4$$

- Write down the firm's supply curve.
 - What quantity of output will the firm produce if the price is 30?
 - What is the profit when price is 30?
-

3. There are 50 identical, price-taking firms that can produce a commodity which sells at price p . Each firm's cost function is:

$$c(q) = 10q + \frac{1}{2}q^2$$

- Write down the supply curve of an individual firm.
 - Write down the market supply curve.
 - What is the total quantity produced (by all firms) if the price is 15?
 - What is the total profit (of all firms) if the price is 15?
-

4. A price-taking consumer with income $Y = 100$ has utility over numeraire consumption c and a commodity q given by:

$$u(c, q) = c + 12q - q^3$$

- a. Write down the consumer's demand curve.
 - b. Draw the demand curve.
 - c. How much of the commodity will the consumer consume if the price is 4?
 - d. What is consumer's utility when the price is 4?
-

5. A price-taking consumer with income $Y = 100$ has utility over numeraire consumption c and a commodity q given by:

$$u(c, q) = c + 10q^{1/2}$$

- a. Write down the consumer's demand curve.
 - b. How much of the commodity will the consumer consume if the price is 5?
 - c. What is consumer's utility when the price is 5?
-

6. There are 100 identical, price-taking consumers with income $Y = 100$. Each consumer has utility over numeraire consumption c and a commodity q given by:

$$u(c, q) = c + 20q - q^2$$

- a. Write down the demand curve of an individual consumer.
 - b. Write down the market demand curve.
 - c. What is the total quantity produced (by all consumers) if the price is 10?
 - d. What is the total utility (of all consumers) if the price is 10?
-

7. A commodity q is traded at price p in a competitive market with price-taking consumers and firms.

There are 960 identical consumers each with income $Y = 100$. Each consumer has a utility function over numeraire consumption c and commodity q given by:

$$u(c, q) = c + 20q - q^2$$

There are 48 identical firms each with cost function given by:

$$c(q) = \frac{1}{5}q^2$$

- a. Write down the market demand curve.
 - b. Write down the market supply curve.
 - c. What is the equilibrium price and total quantity traded?
-