As the price of a good rises, firms will produce more to make more revenue. New firms will have an incentive to enter the market. The tendency of suppliers to offer more of a good at a higher price is called the law of supply. This law states that the higher the price, the larger the quantity produced. If the price of a good falls, less of a good will be produced. Some firms will produce less, and others might drop out of the market.

A market supply curve illustrates the quantity supplied by all producers in a market at different prices. For example, a market supply curve could show the quantity of pizza supplied by all the pizzerias in a city. A supply curve always rises from left to right. That is because higher prices lead to higher output.

Elasticity of supply is a concept that predicts how suppliers react to price changes. Industries that cannot easily alter production have inelastic supply. Orange growers, for example, cannot increase production quickly when prices rise. They need to purchase more land and plant more trees in order to increase output. A service industry like a barbershop has elastic supply. If the price of a haircut rises, barber shops and salons can hire new workers quickly. New barber shops will start, and existing businesses will stay open later.

**The Big Idea**

The law of supply states that producers will offer more of a good if prices rise, and less of a good if prices fall.

1. According to the law of supply, what happens to the quantity of goods produced if prices fall?

2. Graph Skills At the price of $2.50, how many slices will be supplied?
Economists divide a producer’s costs into fixed costs and variable costs. A **fixed cost** is a cost that does not change, no matter how much is produced. Examples of fixed costs include rent and machinery repairs. A **variable cost** is a cost that rises or falls depending on the quantity produced. These include the costs of raw materials and some labor. Fixed and variable costs are added together to find **total cost**.

Businesses can increase output by hiring more workers or purchasing more capital. The change in output from adding one more worker is the **marginal product of labor**. At the beginning, adding each worker will result in **increasing marginal returns**. Workers will be able to specialize and gain skills. At some point, adding each worker will result in **diminishing marginal returns**. Workers may need to wait to use a tool or machine. As more workers are added, there will eventually be negative marginal returns.

**Marginal cost** is the cost of producing one more unit of a good. **Marginal revenue** is the revenue gained from producing one more unit of a good—usually, the price of a unit. When marginal cost is less than marginal revenue, a producer has an incentive to increase output, since it will earn a profit on the next unit produced. When marginal cost is more than marginal revenue, a producer has an incentive to decrease output, since it will lose money on the next unit produced. That is why profits are maximized when marginal cost equals marginal revenue.

### Graphic Summary: Marginal Product of Labor

<table>
<thead>
<tr>
<th>Labor (number of workers)</th>
<th>Output (beanbags per hour)</th>
<th>Marginal product of labor</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>—</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>23</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>28</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>31</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>31</td>
<td>-1</td>
</tr>
</tbody>
</table>

In this example, there are increasing marginal returns from adding the first three workers. As the next four workers are added there are diminishing marginal returns. The eighth worker results in negative marginal returns.

### Review Questions

1. Explain the difference between fixed costs and variable costs.

2. **Graph Skills** How many more bean bags per hour are produced by adding a fourth worker?
Any change in the cost of inputs, like raw materials, machinery, or labor, will affect supply. A cost increase causes a fall in supply at all prices because the good has become more expensive to produce. Supply that falls at all prices can be shown as a shift to the left of a supply curve. A fall in the cost of an input will cause an increase in supply at all price levels. An increase in supply is shown by a shift to the right of the supply curve.

The government has the power to affect the supply of many goods. A subsidy is a government payment to support a business or market. Since the subsidy lowers producers’ costs, its effect is usually to increase supply. The government can also reduce the supply of some goods by placing an excise tax on them. An excise tax is a tax on the production or sale of a good, making it more expensive to produce. Regulation, or steps the government takes to control production, may also affect supply.

Another influence on supply is producers’ expectations. If sellers expect the price of a good to rise in the future, they will store goods now and sell more in the future. But if the price of the good is expected to drop, sellers will put more goods on the market immediately. In periods of inflation, or rising prices, producers often try to hold on to goods, reducing supply.

### Graphic Summary: Forces that Affect Supply

<table>
<thead>
<tr>
<th>Forces that Increase Supply</th>
<th>Forces that Decrease Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreases in production costs</td>
<td>Increases in production costs</td>
</tr>
<tr>
<td>Increases in technology</td>
<td>Excise taxes</td>
</tr>
<tr>
<td>Government subsidies</td>
<td>Government regulations</td>
</tr>
<tr>
<td>Expectations of future lower prices</td>
<td>Expectations of future higher prices</td>
</tr>
<tr>
<td>More firms entering the market</td>
<td>Firms leaving the market</td>
</tr>
</tbody>
</table>

Many different forces are at work in the marketplace to change the supply of goods and services.

### Review Questions

1. What effect does inflation often have on producers and the supply of goods?
2. Chart Skills How do government actions change supply?
IDENTIFYING MAIN IDEAS

Write the letter of the correct answer in the blank provided. (10 points each)

1. According to the law of supply,
   A. the lower the price the larger the quantity consumed.
   B. the higher the price the larger the quantity produced.
   C. if the price of a good rises some firms will produce less.
   D. if the price of a good falls new firms may enter the market.

2. A market supply curve shows
   A. the quantity supplied by producers at different prices.
   B. supply for any set of conditions.
   C. how prices affect the cost of raw materials.
   D. how the supply of goods is kept in balance.

3. Which of the following businesses has elastic supply?
   A. newspaper publishing
   B. apple farming
   C. hair cutting
   D. electricity generating

4. Which of the following is an example of a variable cost?
   A. rent
   B. machinery repair
   C. equipment
   D. raw materials

5. The change in output from adding one more worker is the
   A. marginal product of labor.
   B. increasing marginal returns.
   C. diminishing marginal returns.
   D. negative marginal returns.

6. Marginal cost is
   A. total revenue minus total cost.
   B. total revenue plus total cost.
   C. the cost of producing one more unit of a good.
   D. the difference between fixed and variable costs.

7. A producer's profits are maximized when
   A. marginal costs are equal to fixed costs plus variable costs.
   B. marginal costs are less than marginal revenue.
   C. marginal costs result in decreasing marginal returns.
   D. marginal costs are equal to marginal revenue.

8. Which of the following leads to an increase in supply?
   A. an increase in the cost of raw materials
   B. a decrease in the cost of raw materials
   C. diminishing marginal returns
   D. a change in the law of supply

9. A subsidy is
   A. a tax on the production or sale of a good.
   B. a government payment to support a business or market.
   C. a form of government regulation.
   D. illustrated by the market supply curve.

10. If sellers expect the price of a good to rise in the future, they will
    A. put more goods on the market immediately.
    B. raise their prices now.
    C. store goods now and sell more in the future.
    D. set prices according to the law of demand.