

# MATH PRACTICE FOR ECONOMICS



## ACTIVITY 5

### **A** PPLYING THE LAW OF SUPPLY

The Law of Supply states that the quantity supplied *varies directly* with its price. *Varies directly* means that when one variable gets larger, the other variable gets larger, as in the equation  $y = 3x$ : when  $x = 1$ ,  $y = 3$ ; when  $x = 2$ ,  $y = 6$ ; when  $x = 3$ ,  $y = 9$ ; when  $x = 4$ ,  $y = 12$ ; and so on.

**Directions:** Answer the following questions.

*Varies directly* can also mean that when one variable gets smaller, the other variable gets smaller, as in  $y = x/2$ : when  $x = 10$ ,  $y =$  **(1)** \_\_\_\_\_; when  $x = 6$ ,  $y =$  **(2)** \_\_\_\_\_; and when  $x = 2$ ,  $y =$  **(3)** \_\_\_\_\_.

*Variables* are things that change. The variables to consider in the Law of Supply are quantity and price. If the quantity supplied varies directly with the price, an increase in price will mean a corresponding increase in quantity supplied.

Supply is easier to understand if you take the point of view of the supplier. Imagine that you supply labor. If someone offers you \$10 an hour for tutoring after school, you are more likely to want to work more hours than if they offered you only \$2 an hour.

Compare the two situations. How many hours would you have to tutor at \$2 an hour to equal the pay you would get for 4 hours at \$10 an hour? **(4)** \_\_\_\_\_

The truth is that though you might not feel like giving up 20 hours a week at \$2 an hour for a total of

**(5)** \$ \_\_\_\_\_, you might gladly give up 20 hours a week at \$10 an hour for a total of

**(6)** \$ \_\_\_\_\_.

Now *you* think about it. How many hours would *you* be willing to spend a week tutoring at \$2 an hour? In your opinion: **(7)** \_\_\_\_\_ At \$10 an hour? In your opinion: **(8)** \_\_\_\_\_

There are other factors that affect supply. Imagine that you have an outlet for the beaded earrings you make. Each pair of earrings costs you \$1 in supplies and takes about 2 hours to make. If you work 10 hours a week, you make **(9)** \_\_\_\_\_ pairs at a cost of **(10)** \_\_\_\_\_. If you sell each pair for \$5, your profit is

**(11)** \_\_\_\_\_.

Soon you get an offer to sell your earrings at \$10 a pair, so you work 14 hours a week. You make **(12)** \_\_\_\_\_ pairs and a profit of **(13)** \_\_\_\_\_.

One day you discover a cheaper source for your wire and beads, so the cost of making the earrings drops \$.25 a pair. Since you are now making a profit of **(14)** \_\_\_\_\_ on each pair, you are inspired to work more hours. You put in 18 hours, making **(15)** \_\_\_\_\_ pairs. Your total profit is **(16)** \_\_\_\_\_. This is an example of how a change in the cost of input (wire and beads) causes a change in supply.