Name _____   Date _____

2-3 Supply and Demand

Exercises

1. Wayne's Widget World sells widgets to stores for $9.20 each. A local store marks them up $8.79. What is the retail price at this store?

2. The wholesale price of an item is w dollars. The retail price is p percent higher. Express the retail price algebraically.

3. The Knockey Corporation sells hockey sticks at a wholesale price of $103. If a store marks this up 106%, what is the retail price?

4. A tire company sells bicycle tires to retailers for t dollars. The Mineola Bike Shop marks them up 80%. Express the retail price at the Mineola Bike Shop algebraically.

5. The following graph shows the supply and demand curves for a widget.
   a. Explain what will happen if the price is set at $9.

   b. Use the graph above to explain what will happen if the price is set at $2.75.
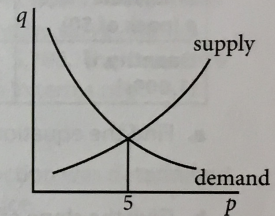
6. An automobile DVD system sells to stores at a wholesale price of $497. A popular national chain store sells them for $879.99. What is the markup?

7. A guitar sells for a retail price of g dollars. The wholesale price of the guitar is w. Write an expression for the markup and an expression for the percent of the markup.

8. An automobile ski rack is sold to stores at a wholesale price of $38. If a store has a $23 markup, what is the retail price of the ski rack? Find the percent of the markup, to the nearest percent.

9. A manufacturer takes a poll of several retailers to determine how many widgets they would buy at different wholesale prices. The results are shown. What is the equation of the demand function? Round values to the nearest hundredth. How many widgets, to the nearest hundred, would retailers buy at a price of $20?

Wholesale Price	23	26	28	30	33	35	37	40
Quantities Retailers Will Purchase (1,000s)	4,000	3,450	3,100	2,550	2,000	1,900	1,750	1,400

Name _____

10. The graph shows supply and demand curves for the AquaPod, a digital music player for scuba divers.
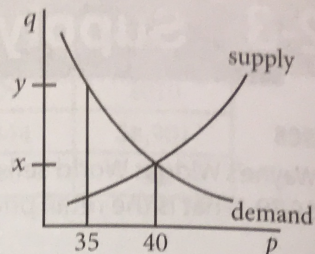
a. What is the equilibrium price?

b. What will happen if the price is set at $35?

c. How many AquaPods are demanded at a price of $35?

d. How many AquaPods are supplied at a price of $40?

e. What will happen if the price is set at $45?

11. The Coletti Company produces paper cups. They have developed a new type of insulated cup that is biodegradable and doesn't allow the cup to get too hot to hold. They want to use the demand function to help them set a price. They survey dozens of retailers to get an approximation of how many cups would be demanded at each price.

Wholesale Price, p (pack of 50)	$5	$5.50	$6	$6.50	$7	$7.50	$8	$8.50	$9	$9.50
Quantity, q (1,000s)	5,100	4,900	4,600	4,200	3,700	2,400	2,100	1,600	700	200

a. Find the equation of the linear regression line. Round to the nearest thousandth.

b. Give the slope of the regression line and give an interpretation of its units.

c. Find the correlation coefficient and interpret the value. Round to the nearest thousandth.

d. Based on the regression line, how many packages of cups would be demanded at a wholesale price of $4? Round to the nearest hundred.

e. Was your answer to part d an example of extrapolation or interpolation? Explain.

f. Based on the table, if the company sold 5,100,000 packages of cups at a price of $5 each, how much money would they take in?

g. If the company sold 200,000 packages of cups at a price of $9.50 each, how much money would they take in?

h. Compare your answers to parts f and g. Why is it not correct to conclude that more profit is made by selling for $5 than for $9.50?