***Chapter 2***

***Lesson 2.1: Modeling Expressions***

***Key Terms:***

-***Expression-*** is a mathematical phrase that contains operations, numbers, and/or variables.

-***Terms-*** are the parts of the expression being added.

-***Coefficient-*** the numerical factor of a variable term.

-***Numerical Expression-*** an expression that only contains numbers.

-***Algebraic Expression-*** an expression that contains at least one variable.

***Examples:***

1). 8p + 2q + 7r 2). 18-2x-4y 3). 2x + 3y -4z + 10

***Terms: Terms: Terms:***

***Coefficients: Coefficients: Coefficients:***

4). Tickets to the amusement park are $60 for adults and $30 for children. If *a* is the number of adults *c* is the number of children, then the cost for *a* adults and *c* children is 60a + 30c.

***Terms:***

***Factors:***

***Coefficients:***

5). The price of a case of juice is $15.00. Fred has a coupon for 20 cents off each bottle in the case. The expression to find the final cost of the case of juice is *15-0.2b*, where *b* is the number of bottles.

***Terms:***

***Factors:***

***Coefficients:***

6). Sally identified the terms of the expression *9a + 4b – 18* as *9a, 4b,* and *18. Explain her Error.*

7). What is the coefficient of *b* in the expression *b + 10*? Explain.

***Interpreting Algebraic Expressions in Context***

***Examples:***

1). Curtis is buying supplies for his school. He buys *p* packages of crayons at $1.49 per package and *q* packages of markers at $3.49 per package. What does the expression *1.49p + 3.49q*?

*Interpret the terms of the expression.*

2). Jill is buying ink jet paper and laser jet paper for her business. She buys 8 more packages of ink jet paper than *p* packages of laser jet paper. Ink jet paper costs $6.95 per package and laser jet paper costs $8 per package. What does the expression *8p + 6.95(p + 8)* represent?

*Interpret the terms of the expression.*

3). George is buying watermelons and pineapples to make fruit salad. He buys *w* watermelons at $4.49 each and *p* pineapples at $5 each. What does the expression *4.49w + 5p* represent?

*Interpret the terms of the expression.*

4). Sandi buys 5 fewer packages of pencils than *p* packages of pens. Pencils cost $2.25 per package and pens cost $3 per package. What does the expression *3p + 2.25(p-5)* represent?

*Interpret the terms of the expression.*

***Modeling Expressions in Context***

***Examples:***

1). The price of an item plus 6% sales tax 2). The price of a car plus 8.5% sales tax.

3). The number of gallons of water in a tank, that already has 300 gallons in it, after being filled at 35 gallons per minute for *m* minutes. *Write an expression.*

4). What is 85% of an item that has an original price *p. Write an expression.*