Algebra Notes 1.3

 Translating Verbal Phrases

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| **Operation** | **Verbal Phrase** | **Expression** |
| **Addition:** sum, plus, total, more than, increased by | The sum of 6 and a number.A number is increased by 11. | 6 + nn +11 |
| **Subtraction:** difference, less than, minus, decreased by | The difference of a number and 3.8 less than a number. | n – 3 (not 3 – n!!!)n - 8 |
| **Multiplication:** times, product, multiplied by, of | 9 times a number.The product of a number and 25.Half of a number. | 9n or 9 x n25n or 25 x n1/2n or ½ x n |
| **Division:** quotient, divided by, divided into | The quotient of a number and 7.A number divided into 4. | n/7 (not 7/n!!!)n/4 (not 4/n!!!) |

**For subtraction and division order is important!**

Example 1: 6 less than the quantity 5 times a number n 5n – 6

 4 times the sum of 9 and a number y 4(9 + y)

 8 less that twice a number s 2s – 8

Example 2: A piece of paper is 11 inches long. A section that is *r* long is cut from the paper. Draw it and write an expression. When *r* = 3 inches, how much paper is left?

11 – *r* = 11 – 3 = 8 inches

Verbal Model describes a real-world situation using words as labels and using math symbols to relate the words. You can replace the words with numbers and variables to create a mathematical model, such as an expression, for the real-world situation. For instance: 40% off + sales tax

Example 3: You work at a Farrell’s Ice Cream Parlor and split the tips with all the other 5 waiters and waitresses at the end of the shift. Write an expression.

Don’t forget to count YOU!!!

t = tips $\frac{t}{1+5} or t ÷(1+5)$

Rate is a fraction that compares two quantities measured in different units. For instance, miles per hour, feet per second, etc….

Unit rate is has a denominator of 1 unit. For instance, 4 miles per hour (mph) can be written $\frac{ 4 miles}{1 hour }.$

Example 4: A car travels 240 miles in 4 hours. What is the unit rate?

$$\frac{240 miles}{4 hours}= \frac{60 miles}{1 hour}= \frac{60 miles}{hour}$$

Example 5: Your basic monthly cell phone service is $60 and includes 300 free minutes. One month you paid $5.75 for 15 extra minutes. What was the monthly rate for the extra minutes? What is the verbal model?

$\frac{\$5.75}{15 minutes}=\frac{\$0.38}{minute} or \$0.38 per minute $ Overage Charge $÷$ Overage minutes