

## **Algebra 1 Chapter 1 Notes**

### **1.1**

#### **Vocabulary**

Variable—

Values—

Variable Expression—

#### **Formulas:**

Average Speed:

Perimeter:

**Examples:**

**Practice Problems**

1. Find the average speed of a car that traveled 200 miles in 4 hours.
  
  
  
  
  
  
  
  
  
  
2. Find the average speed of a truck that traveled 120 miles in 2 hours.

Find the perimeter of the triangle with the indicated side lengths. The dimensions are in feet.

3.  $A=12, b=16, c=20$

4.  $A=20, b=21, c=29$

## 1.2 Exponents & Powers

### Vocabulary

$$4^3$$

### Examples:

### Practice Problems

Evaluate the expression for the given value of the variable.

1.  $3^n + n^3$  when  $n=5$

2.  $(3c^4 - 18)^c$  when  $c = 2$



### 1.3 Order of Operations

#### Order of Operations

Examples:

#### Practice Problems

Evaluate the expression for the given value of the variable.

1.  $29 - 4b$  when  $b = 6$

2.  $18 - \frac{42}{c}$  when  $c = 7$

Evaluate the expression

3.  $2 \cdot 3^2 + \frac{4}{7}$

4.  $[22 - (4^3 \div 8)] \cdot 3$



## **1.4 Equations & Inequalities**

### **Vocabulary:**

Equation—

Inequality—

Less Than:

Greater Than:

### **Examples:**

### **Practice Problems**

Determine whether the given number is a solution of the given equation or inequality.

1.  $4d + 1 = 9$ ; 2

2.  $5n - 7 < 23$ ; 6

3.  $x^2 + 6 \geq 55$ ; 7





## **1.5 Problem Solving**

Addition

Subtraction

Multiplication

Division

### **Verbal Phrase**

The sum of six and a number

Four less than a number

Eight more than a number

The product of nine and a number

A number decreased by nine

A number plus five

### **Expression**

The quotient of a number and four

**Verbal Phrase**

**Expression**

The difference of five and a number

A number increased by seven

Seven minus a number

Ten times a number

A number multiplied by three

Seven divided by a number

**Problem Solving Plan**

1. Write out all the important information from the problem
2. Ask yourself what you need to know then \_\_\_\_\_  
\_\_\_\_\_.
3. Assign \_\_\_\_\_.
4. Use \_\_\_\_\_ to write \_\_\_\_\_.
5. Solve the \_\_\_\_\_. Be sure to include \_\_\_\_\_.
6. Check that your answer \_\_\_\_\_.

**Practice Problem**

1. The science club is selling magazine subscriptions at \$12 each. How many subscriptions does the club have to sell to raise \$276?

## **1.6 Tables & Graphs**

How to draw a

### **Line Graph**

1. Give your graph a Title
2. Draw & Label the horizontal axis (Make sure it is evenly spaced)
3. Draw & Label the vertical axis (Make sure it is evenly spaced)
4. Plot the points indicated by the data
5. Draw a line from point to point.

### **Bar Graph**

1. Give your graph a Title
2. Draw & Label the horizontal axis with group names (be sure to leave space between groups)
3. Draw & Label the vertical axis (Make sure your numbers are evenly spaced)
4. Use the data to draw your bars.

### Examples

From 1993 to 1999, the average school spending per student in the U.S. is given in the following table. Draw a line graph of the data.

Average School Spending Per Student							
Year	1993	1994	1995	1996	1997	1998	1999
Amount	\$5804	\$5996	\$6208	\$6443	\$6764	\$7142	\$7533

The table shows the number of gallons of water needed to produce one pound of some foods. Make a bar graph of the data.

Gallons of Water Needed to Produce 1 pound of Food					
Food (1 lb)	Lettuce	Tomatoes	Melons	Broccoli	Corn
Water (gallons)	21	29	40	42	119

## **1.7 An Introduction to Functions**

### **Vocabulary:**

Function:

Input:

Output:

Domain:

Range:

Examples:

**Practice Problems:**

1. Make an input-output table for  $y = 2x - 1$  using  $x = 1, 2, 3$  and  $4$ . Does the table represent a function? Why or why not? Describe the domain and range.


2. **a.** You are buying fabric that costs \$6.40 per yard. Write an equation for the total cost of the fabric  $C$  as a function of the yards of fabric  $y$  that you buy.

- b.** Make an input-output table for the function for every 5 yards until you reach 30 yards.
