Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hr \_\_\_\_\_\_\_\_\_\_

**Formula Notes and Practice**

**What is a Formula?**

A formula is a special type of \_\_\_\_\_\_\_\_\_\_\_\_\_that shows the relationship between different\_\_\_\_\_\_\_\_\_\_\_\_.

(A variable is a \_\_\_\_\_\_\_\_\_\_\_ like x or V that stands in for a number we don't know yet).

**Example: The \_\_\_\_\_\_\_\_\_\_\_\_ for finding the \_\_\_\_\_\_\_\_\_\_\_ of a box is:**

V = lwh

**V** stands for \_\_\_\_\_\_\_\_\_\_\_, **l** for \_\_\_\_\_\_\_\_\_\_, **w** for \_\_\_\_\_\_\_\_, and **h** for \_\_\_\_\_\_\_\_\_\_.

A formula will have \_\_\_\_\_\_\_\_\_ **than one \_\_\_\_\_\_\_\_\_\_\_\_**.

**These are all \_\_\_\_\_\_\_\_\_, but only some are \_\_\_\_\_\_\_\_\_\_\_\_:**

**v**  = d \_\_\_\_\_\_\_\_\_\_\_\_ (relating velocity, v, to distance, d, and time, t.)

 t

**a2** + **b2** = **c2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (relating the 3 sides of a right triangle, **a**, **b** and c.)

**x/2 + 7 = 0 \_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_** (just an \_\_\_\_\_\_\_\_\_\_\_)

**Subject of a Formula:**

The "subject" of a formula is the \_\_\_\_\_\_\_\_\_\_\_, (usually on the left of the "="), that everything else is equal to.

**Example:**

**In the formula, below ‘a’ is the subject of the formula.**

 **a = v finish – v start**

 **t**

**In this formula, ‘a’ represents \_\_\_\_\_\_\_\_\_\_\_\_\_, ‘v’ represent \_\_\_\_\_\_\_\_\_\_, & ‘t’ represents \_\_\_\_\_.**

One of the very powerful things that we can do with math is to "rearrange" a \_\_\_\_\_\_\_\_\_\_\_ so that another \_\_\_\_\_\_\_\_\_\_\_ is the subject.

We do this using the same rules that we used to solve \_\_\_\_\_\_\_\_\_\_. The difference is that we may not have numbers to put in the equation!

Rearrange the \_\_\_\_\_\_\_\_\_\_\_\_ of the box formula, (**V = lwh**), so that the \_\_\_\_\_\_\_\_ is the subject:

 Start with: **V = lwh**

 Divide both sides by h: **V = lwh ; V = lw**

**h h h**

 Divide both sides by l: **V = lw ; V = w**

hl l hl

 Swap sides: **w = V / hl**

So now if you have a box with a length of 2m, ( l = 2 m), a height of 2m, (h = 2 m), and a volume of 12m3, (V = 12 m3) you can calculate its width:

**w = V / hl**

**w = 12m3 / (2m×2m)** = **12/4** = **3m**

**Practice Rearranging Formulas That You Will Use in This Class**

**Show all the steps!**

1. Rearrange the formula, **F = ma**, so that m is the ‘subject’. What do you think the variable, m, represents?

2. Rearrange the formula, **P = W ,** so that W is the subject. What does the variable, W, represent?

 **t**

3. Rearrange the formula, **v= d** so that t is the subject. What does the variable, t, represent?

 **t**

4. Rearrange the formula, **w = mg,** so that g is the subject. What does the variable, g, represent?

5. Rearrange the formula, **Ep = mgh,** so that h is the subject. What does the variable, h, represent?

6. Rearrange the formula, **Ek = ½ mv2 ,** so that v is the subject. What does the variable, v, represent?

7. Rearrange the formula**, d = ½ gt2**, so that g is the subject.