Physics 11

**Unit 3 – 2D Kinematics**

**Section 3.1: Working with Vectors**

**Remember the rules for adding vectors?**

* We can put them in any \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Each time we add a new vector, we \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The answer (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) goes from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**To subtract vectors**, we \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**To multiply a vector by a scalar**, we multiply its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and keep its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the same.

**Examples:**

3 m Down – 4 m Left 2 m/s West + (1 m/s North) x 3

What if, rather than *drawing* the resultants (like we just did), I wanted you to *write* them in words?

**Examples:** Describe the magnitude and direction of the following vectors.

15o

12 m/s2

3 m

50o

Now let’s put it all together (and review trigonometry).

**Examples:** Write the resultant.

3 m/s up + 4 m/s right

5 m west – 2x(2 m north)