Name _____ Hour _____

Notes and Examples for Vectors

*Must have protractor w/your name on it **every day** this unit.
(50 cents for a new one if you forget ☺)

A) Definitions

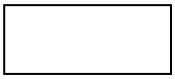
scalar- any quantity that has just _____ (_____)

examples: _____

vector- any quantity that has _____ and _____

examples: _____

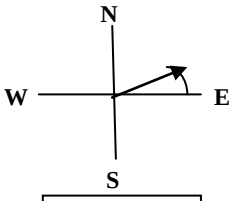
tail ***head***

What does a vector look like? This is how we represent a vector: 

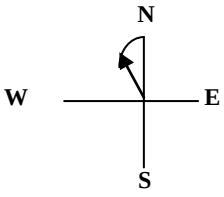
The length of the vector gives its _____.

The orientation (the way it's pointing) of the vector gives its _____.

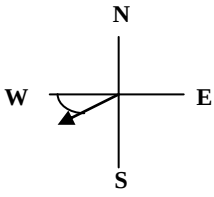
B) Orientation of a Vector



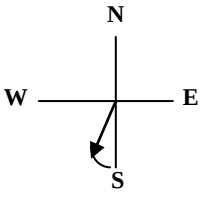
20° ___ of ___



20° ___of___



20° ___of___



20° ___ of___

C) Adding Vectors

The sum of two or more vectors is known as the _____ (_____).

We will be learning how to add vectors 2 different ways:

1. **Method # 1: Graphically- making a _____ _____** ***(taught today.)***
2. **Method # 2: By Resolution into Components- breaking each vectors into _____ triangles and using trigonometry** ***(We will learn this on _____.)*** **DO NOT BE ABSENT!**

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Method 1: Adding Vectors Graphically
(*It's making a scaled drawing.)*

Steps:

1) Decide what quadrant the vectors will be in. Draw the axis and write your _____ in a box.

2) Draw the first vector to scale starting at the origin and label it ___.

3) Draw the remaining vectors, so that they make a _____path and label them _____, _____, _____, etc.

4) Draw the _____as the dashed line from the _____ to the _____ of the last vector and label it ____.

5) Measure the length of ____ to get the _____ and the angle of ____ (relative to the closest axis so angles are less than or equal to 45^o) to get the _____ and write your answer in a box.

Example 1: Solve the following problem graphically. (That means solve it using a _____ **_____.**) **Sheldon gets upset with Leonard for taking his cereal. Sheldon chases Leonard 60 meters at 40^o N of E and then 40 meters at 10^o E of N. Calculate Sheldon's total displacement- which is his** distance from _____.

Scale:

R = _____ at _____ of _____

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Method #2: Adding Vectors By Resolution into Components

Example 2: Gargamel is trying to catch the Smurfs. He travels at 6 m at 20° N of E, and then 4 m at 20° E of N. Find his displacement.

a) graphically.

Scale:	R = _____ at _____ of _____

use 3 different colors

b) by resolution into components.

R = _____ at _____ of _____

Name _____ Hour _____

Extra Example or Practice Problem:

A sparrow is flying at 7 m/s at 35^{o} N of E, but then there is a wind blowing at 3 m/s at 20^{o} S of E.

Find the velocity of the sparrow. *(the bird, not Jack Sparrow ☺)*

a) graphically.

R = _____ at _____ of _____

Scale:

b) by resolution into components.

R = _____ at _____ of _____