## 3-1 Notes

## Vectors

# Scalars

- A quantity that can be specified from its magnitude only with units
- No direction needed
- Examples are speed and distance
- Represented by italics; v = 2.4 m/s

Vectors

- A quantity with both magnitude and direction.
- Examples are velocity and displacement.
- Represented by boldface; v = 2.4 m/s to the north
- 2 Ways to write out Vectors
- Polar Notation; Rectangular Notation

# Adding Vectors

- Vectors can be added graphically.
- When adding two or more vectors, the answer is called the resultant.
- Vectors can be moved parallel to themselves in a diagram as long as they don't change direction or length.
- Draw vectors using <u>head to tail method</u>.

An arrow shoots 34 m/s at an angle of 20 degrees North West than the wind blows 25 m/s at an angle of 10 degrees North West. What is the resultant?

#### Pythagorean Theorem

 If two vectors are at a 90<sup>0</sup> angle, use the Pythagorean Theorem to find the resultant vector.

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$$C^2 = a^2 + b^2$$

- Find the angle of the resultant vector by using Tangent function
- Tan  $\theta$ = opp / adj

- A pirate walks 45 m north, then 7.5 m east. What is his displacement?
- Use Pythagorean theorem since it is a 90 degree angle.
- Must find degrees, use tan

#### Assignment! (I'm very excited as well)

• Each student needs:

- Graph Paper
- Ruler

Protractor

### Homework Assignment

## •3.1 Worksheet