Resolving Vectors

Add V(A) and V(B) by tail to head

Resolving (adding) by arrows

- Given two vectors V(A) and V(B). Draw each as an “arrow” and label them.
- Determine V(A + B) by connecting the tail of V(B) to the head of V(A) and then drawing a new arrow V(A + B) from the tail of V(A) to the head of V(B).
- Determine magnitude of V(A + B) by the Pythagorean Theorem.
- Determine the angle V(A + B) by arctan (y/x).

Example #1

- V(A) is 5 meters EAST;V(B) is 12 meters NORTH
- V(A + B) goes from the tail of V(A) to the head of V(B)
- 5^2 + 12^2 = 25 + 144 = 169
- V(A + B) = 13 meters
- Arctan(12/5) = 67 degrees above the x axis

Group Activity/Practice

- Resolve, determine magnitude and angle of the following pairs of vectors.
- 1. V(A) is 50 meters WEST and V(B) is 50 meters SOUTH.
- 2. V(A) is 500 meters EAST and V(B) is 200 meters NORTH.
- 3. V(A) is 30 km WEST and V(B) is 40 km NORTH.

Group Activity/Practice

- 4. V(A) is 5 Newtons EAST and V(B) is 5 Newtons WEST.
- 5. V(A) is 75 meters North and V(B) is 55 meters SOUTH.
- 6. V(A) is 1000 Newtons EAST and V(B) is 900 Newtons WEST