Unit 2: Kinematics in 1D  
1 - Scalar vs. Vector

**Scalar quantities** have

**Vector quantities** have We represent them

Distance ( ):

*Is distance a scalar or a vector? \_\_\_\_\_\_\_\_\_\_\_\_\_*

Displacement( ):

*Is displacement a scalar or a vector? \_\_\_\_\_\_\_\_\_\_\_\_\_\_*

**a)**  what is the *distance* of Car **A** from Car **B**? \_\_\_\_\_\_\_\_\_\_\_

**b)** what is the *distance* of Car **B** from Car **A**? \_\_\_\_\_\_\_\_\_\_\_

**c)** what is the *position* of Car **A**? \_\_\_\_\_\_\_\_\_\_\_\_   
 of Car **B**? \_\_\_\_\_\_\_\_\_\_\_\_

**d)** what is the *displacement* of Car **A** measured from Car **B**? \_\_\_\_\_\_\_\_\_\_\_\_

**e)** what is the *displacement* of Car **B** measured from Car **A**? \_\_\_\_\_\_\_\_\_\_\_\_



Ex: A polar bear meanders 275 m east and then turns around and ambles 425 m west.

a) What was the distance travelled by the bear?

b) What was the bear’s displacement?

Ex: A student walks 5 m east and then 3 m west.

a) What is the distance (scalar) travelled?

b) What is the student’s displacement (vector)?

NOTE: When adding Vectors…

Ex: A little girl takes her dog for a walk around a city block as shown.

1. What is the distance travelled?
2. What is her final displacement?
3. What was her displacement at B?
4. What was her displacement at C?

Describe the following angles

θ

θ

θ

θ

θ

θ

1

2

3

4

5

6

Add each of the following vectors and find the total resultant.

1. 15 m East and 25 m North
2. 220.0 m North and 80.0 m West
3. 2.2 m South and 1.8 m North
4. 150 m East and 180 m South
5. 45.0 m South and 30.0 m East and 15.0 m North