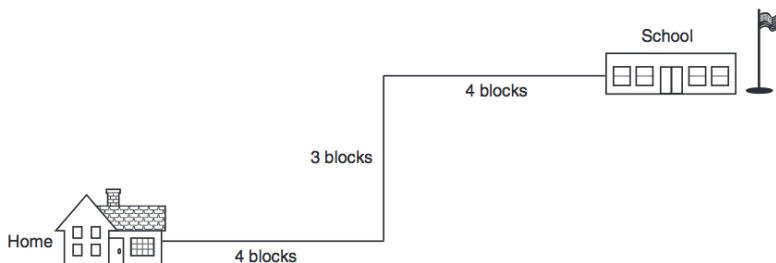


## Distance vs. Displacement

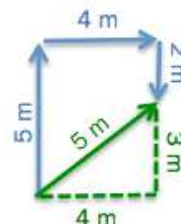
**Directions:** Read textbook pages 40 – 44. Solve the following problems using the GUESS method. Show all work clearly.

1. A student on her way to school walks four blocks east, three blocks north, and another four blocks east, as shown in the diagram.



Compared to the distance she walks, the magnitude of her displacement from home to school is

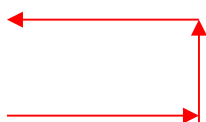
- A) **less**                      B) greater                      C) the same
2. A baseball player runs 27.4 meters from the batter’s box to first base, overruns first base by 3.0 meters, and then returns to first base. Compared to the total distance traveled by the player, the magnitude of the player’s total displacement from the batter’s box is
- A) 3.0 m shorter                      B) 3.0 m longer                      **C) 6.0 m shorter**                      D) 6.0 m longer
3. A child walks 5.0 meters north, then 4.0 meters east, and finally 2.0 meters south. What is the magnitude of the resultant displacement of the child after the entire walk?
- A) 1.0 m                      B) 3.0 m                      **C) 5.0 m**                      D) 11.0 m
4. State the two general characteristics that are used to define a vector quantity.



**Vectors have both magnitude and direction.**

5. Last night Shelia Bleige walked 7.0 blocks east, 2.0 blocks north, and finally 7.0 blocks west.  
 [Draw a picture]

a. What was her displacement?



**Displacement = 2.0 blocks north**

b. What was her distance traveled?

**Distance traveled = 7.0 blocks + 2.0 blocks + 7.0 blocks = 16.0 blocks**

Answers in size order: 2.0, 16.0