

Worksheet
Adding Vectors
Pythagorean Theorem and Trigonometry and the Component Method

1. Find the displacement of an airplane that flies 5.0 km due east and then turns and flies 7.0 km due north.
2. What is the total displacement of a trip in which a person travels 15 km [S] and then 28 km [W]?
3. A plane flying in a triangular pattern flies 150 km [N], then 430 km [E].
 - A) What is its total displacement after these two legs?
 - B) What third displacement would complete the trip back to the starting point?
4. A boat sails in a straight line 25 km [N 31 ° E]. What are the components of its displacement to the north and east?
5. A cannon fires a cannonball with a speed of 154 m/s at an angle of 26° above the horizontal. What are the horizontal and vertical components of the initial velocity of the cannonball?
6. A boat sails 120 km [E 65° N], then 65 km [W]. What is its displacement?
7. A balloon drifts 24 km [S 62° E], then its engines are turned on and it flies 24 km [S 62° W]. What is its total displacement?
8. A man walks 650 m [E 47° N], then 520 m [N 38° W], then 330 m [W 29° S], and finally 440 m [S 13° E]. Find his resultant displacement.