



Another Way to Solve Example 4, page 746

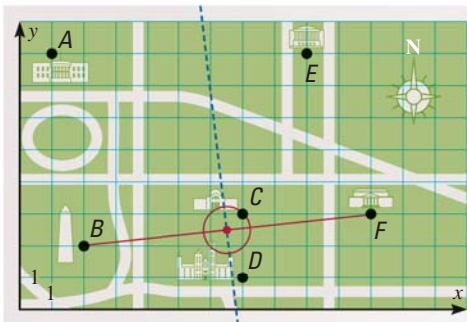
MULTIPLE REPRESENTATIONS In Example 4 on page 746, you saw how to solve a problem about finding a meeting place by using the midpoint and distance formulas. You can also solve the problem by folding a map and using a compass.

PROBLEM

SIGHTSEEING You and a friend are sightseeing in Washington, D.C. You are at the National Gallery of Art, and your friend is at the Washington Monument, as shown on the map. You want to meet at the landmark that is closest to the midpoint of your locations. At which landmark should you meet?

METHOD 1

Folding a map and using a compass An alternative approach is to fold a map and use a compass. First, draw a line connecting your location to your friend’s location. Then fold the map so that your locations coincide. The point where the line connecting your locations is folded represents the midpoint. Place the point of your compass at the midpoint. Adjust the opening of the compass to match the distance between the midpoint and the apparent closest landmark. Swing the compass to see if the other landmark is closer.



- SIGHTS IN WASHINGTON, D.C.
- A) White House
 - B) Washington Monument
 - C) Natural History Museum
 - D) Smithsonian Institution
 - E) National Portrait Gallery
 - F) National Gallery of Art

► Because the Smithsonian lies outside the circle, the Natural History Museum is closer to the midpoint of your locations.

PRACTICE

1. **WHAT IF?** In the problem above, suppose your friend is at the White House.
 - a. At which landmark should you meet?
 - b. Suppose you can walk directly to the landmark in part (a). If the distance between consecutive grid lines represents 0.06 mile, how far do you have to walk?
2. **MAPS** A student makes a map of a town in which the student’s house is located at (1, 2) and a friend’s house is located at (8, 5). A grocery store is located at (5, 3), and a shoe store is located at (3, 4). The student and the friend want to meet at the store that is closer to the midpoint between their houses. At which store should they meet? Solve this problem using two methods.