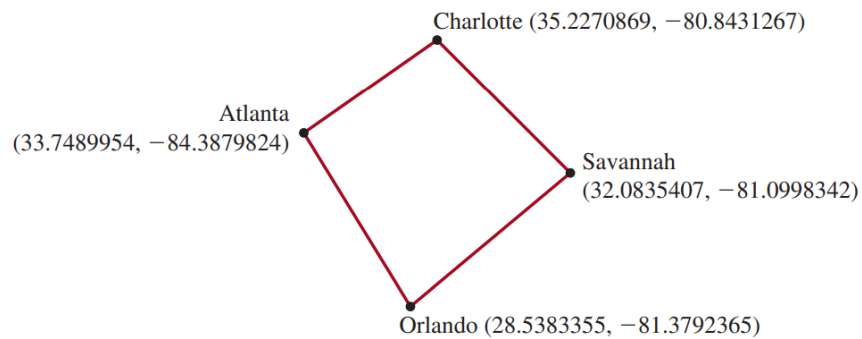


- \*4.3** (*Geography: estimate areas*) Use the GPS locations for Atlanta, Georgia; Orlando, Florida; Savannah, Georgia; and Charlotte, North Carolina in the figure in Section 4.1 to compute the estimated area enclosed by these four cities. (Hint: Use the formula in Programming Exercise 4.2 to compute the distance between two cities. Divide the polygon into two triangles and use the formula in Programming Exercise 2.19 to compute the area of a triangle.)

Suppose you need to estimate the area enclosed by four cities, given the GPS locations (latitude and longitude) of these cities, as shown in the following diagram. How would you write a program to solve this problem? You will be able to write such a program in this chapter.



Formula in programming Exercise 2

$$d = radius \times \arccos(\sin(x_1) \times \sin(x_2) + \cos(x_1) \times \cos(x_2) \times \cos(y_1 - y_2))$$