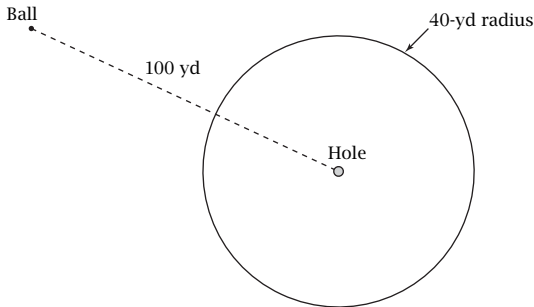


Exploration 6-5b: Golf Ball Problem

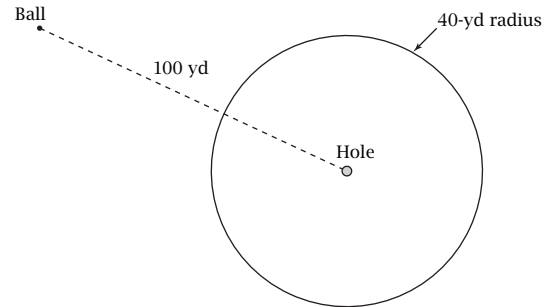
Objective: Analyze a real-world problem involving the ambiguous case.



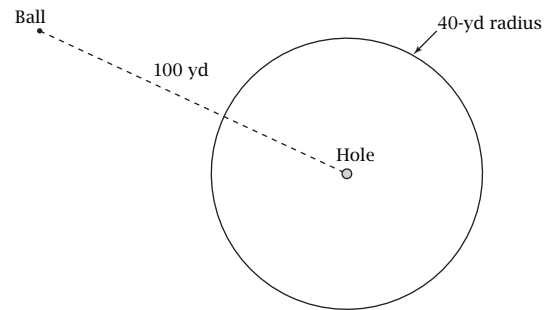
Golf Ball Problem: Dolph Ball hits his tee shot. The ball winds up exactly 100 yd from the hole. On his second shot, the ball winds up exactly 40 yd from the hole, somewhere on the circle shown in the figure.

1. If Dolph's second shot went on a line 15° to the right of the line to the hole, plot on the figure the path the ball took. Show one point where the path crosses the circle. Then draw a triangle with the distance the ball traveled to get to this point as one of its sides and the 40 yd and 100 yd as the other two sides.
2. Use the law of cosines to calculate the *two* possible distances the shot in Problem 1 could have gone. Show both distances on the figure.

3. If Dolph's second shot had gone on a line 30° to the right of the line to the hole, plot the path of the ball on this copy of the figure. Show by calculation that the ball could not have come within 40 yd of the hole.



4. Show on this copy of the figure the path of the ball at the maximum angle Dolph's second shot could have made and still have come to rest 40 yd from the hole. Calculate the measure of this angle. Does the angle you drew have this measure? _____



5. What did you learn as a result of working this Exploration that you did not know before?