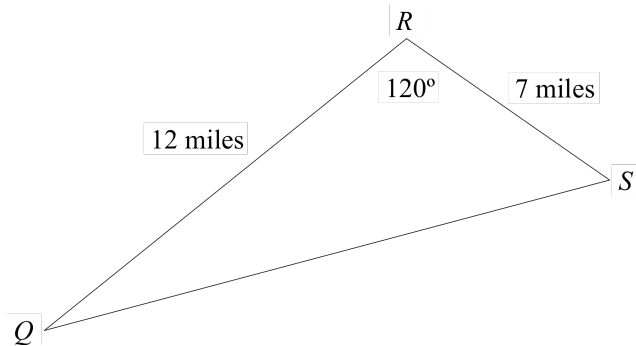


## Applications Involving Law of Sines & Law of Cosines

1. Ronald was traveling from his house to the park to meet his friends. However, he first had to make a stop at the post office. The diagram below shows the distance between Ronald's house,  $Q$ , and the post office,  $R$ . It also shows the distance between the post office and the park,  $S$ .



If  $QR = 12$  miles,  $RS = 7$  miles, and  $m\angle R = 120$ , how far is the park from Ronald's house, to the nearest mile?

2. To measure the distance through a mountain for a proposed tunnel, surveyors chose points  $A$  and  $B$  at each end of the proposed tunnel and a point  $C$  near the mountain. They determined that  $AC = 3,800$  meters,  $BC = 2,900$  meters,  $m\angle ACB = 110$ . Draw a diagram to illustrate this situation and find the length of the tunnel, to the nearest meter.

