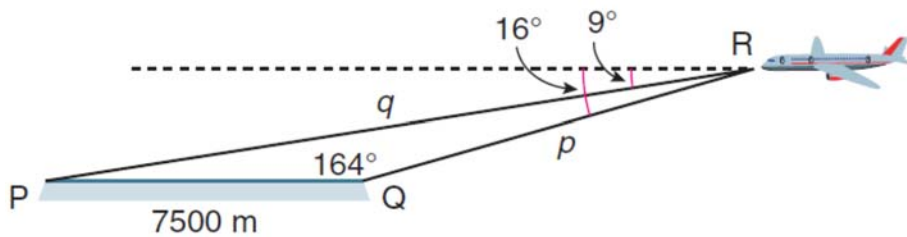# Triangle Trigonometry – Assignment

1. A plane is approaching a 7500 meter runway. How far is the plane from each end of the runway (lengths p and q)? [4]

2. Archeologists can use a set of footprints to measure an animal's "step angle", which is a measure of walking efficiency. The closer the "step angle" is to 180°, the more efficiently the animal walked. Scientists found the following dinosaur footprints. Calculate the "step angle" (marked as θ in the diagram) to the nearest degree. [4]
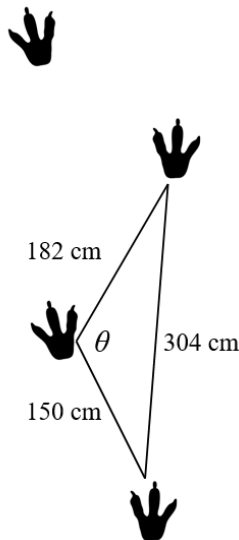

3. In an isosceles triangle, the largest angle is 100°. The longest side of the triangle is 5 centimeters longer than the other two sides.
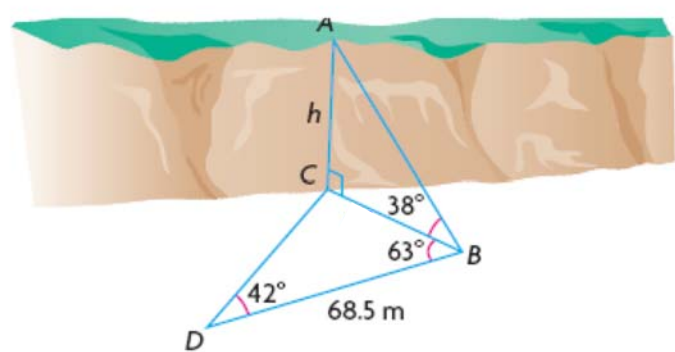
   a) Determine the perimeter of the triangle. [4]

   b) Determine the area of the triangle. [3]

4. Albert and Belle are determining the height of a lighthouse (C) before they climb up it. They are standing 110 meters apart from each other on the ground on the same side of the lighthouse. Albert measures the top of the lighthouse at an angle of elevation of 29^0. Belle views the top of the lighthouse at an angle of elevation of 71^0. How high is the light house? [4]
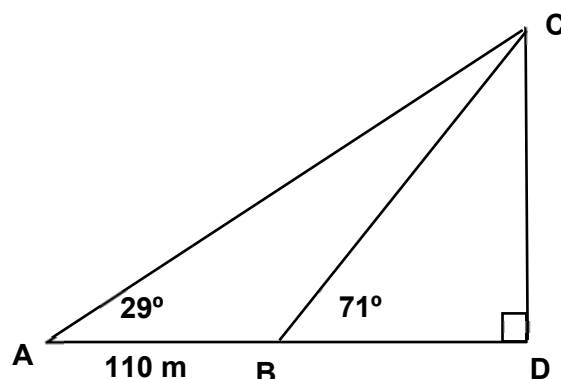
5. Determine the height of the cliff, h, given all the measurements below. [4]

6. Given the reciprocal trig ratio $\csc\theta = \dfrac{12.5}{9.3}$, determine the length of the remaining side, label all sides of the triangle, and then determine the measure of angle θ. [4]