Trigonometry Problems

1. The angle between equal sides of an isosceles triangle is 52°. Each of the equal sides is 18 cm long.
   a) Determine the measures of the two equal angles in the triangle.
   b) Determine the length of the third side.
   c) Determine the perimeter of the triangle.

2. The base of a roof is 12.8 m wide as shown in the diagram below. The rafters form angles of 48° and 44° with the horizontal. How long, to the nearest tenth of a metre, is each rafter?

48°   44°
12.8 m
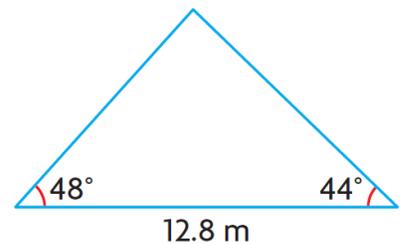
3. A flagpole stands on top of a building that is 27 m high. From a point on the ground some distance away, the angle of elevation to the top of the flagpole is 43°. The angle of elevation to the bottom of the flagpole is 32°.
   a) How far is the point on the ground from the base of the building?
   b) How tall is the flagpole?

4. Two support wires are fastened to the top of a satellite dish tower from points *A* and *B* on the ground, on either side of the tower. One wire is 18 m long, and the other wire is 12 m long. The angle of elevation of the longer wire to the top of the tower is 38°.
   a) How tall is the satellite dish tower?
   b) How far apart are points *A* and *B*?