Problem of the Week
Problem E
From Altitudes to Angles to Sides

In $\triangle ABC$, $\angle BAC$ is the largest angle and $\angle ACB$ is the smallest angle. $AQ$, $BR$, and $CP$ are altitudes with lengths 21 cm, 24 cm, and 56 cm, respectively.

Determine the size of $\angle ABC$ and the lengths of the sides of $\triangle ABC$.

The diagram is not necessarily drawn to scale.