PROBLEM OF THE WEEK Solution of Problem No. 12 (Spring 2003 Series)

Problem: Given a segment CM and another segment PQ with interior point R. Construct, with ruler and compass only, a right triangle in which |CM| is the distance from its orthocenter to its circumcenter and whose legs have the ratio |PR| : |RQ|.

Solution (by the Panel)

Make a right angle with vertex R. By compass lay off |RP| and |RQ| on the sides of the right angle. The distance |CM| is the circumradius of the right triangle T, so lay off \overline{CM} from P along \overline{PQ} and obtain a point M', the circumcenter of T. Make the circle with center M' and radius |CM| and find the intersections R' and Q' with the lines along \overline{PR} and \overline{PQ} , resp. Then $\triangle PR'Q'$ is T.

Solved by:

Faculty: Steven Landy (Physics at IUPUI)

<u>Others</u>: Namig Mammadov (Baku, Azerbaijan), Christopher Smith (MA, St. Cloud St. U., St. Cloud, MN)

One incorrect solution was received.

Two correct solutions of Problem 11 were received late. Credit for it has been given to the solvers, Namig Mammadov (Baku, Azerbaijan), Steve Taylor (Middletown H.S., OH)