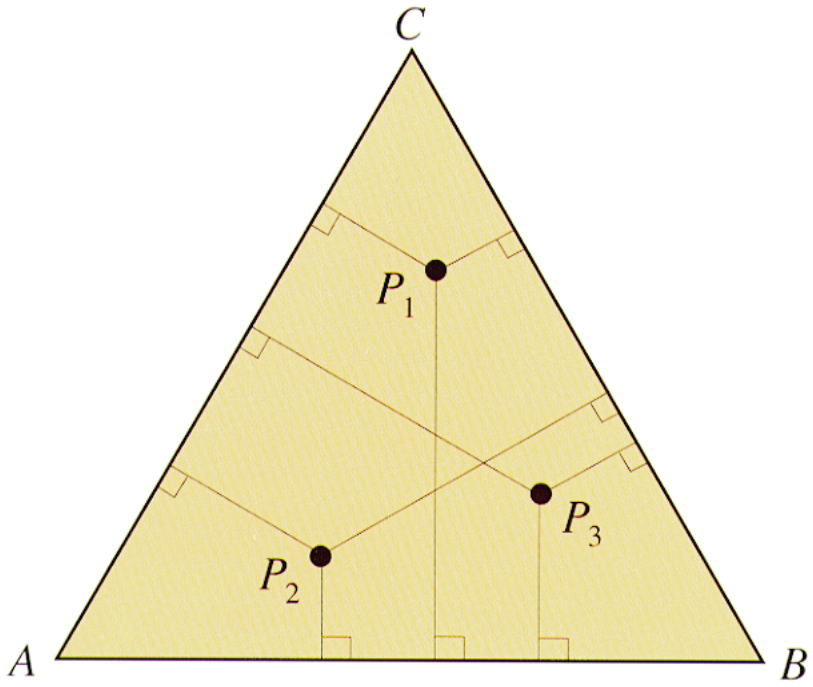
The Shortest Distance

Problem-of-the-Week

The Problem

Triangle ABC is equilateral — all three sides have the same length. Locate a point P so that the sum of the three perpendicular distances from P to the sides of $\triangle ABC$ is as small as possible. P must be inside the triangle. Three locations you might consider are shown.



Strategies and Hints

1. Before you do any measuring, guess where point P should be located.
2. Use a triangle that measures 7 cm on each side. Pick a location for P at random, measure the three perpendicular segments, and find their total.
3. Now try to find a location for P so that the total distance is less.