

Solutions USAMO 2010

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September 9, 2025

This document contains solutions to the USAMO 2010 problems, written by me during my preparation for the International Mathematical Olympiad.

The content reflects my own understanding and problem-solving process. Some solutions may have been inspired by the work of others or required external help, in which case proper attribution is given (see [Section 3](#)). If you notice any errors or have suggestions for improvement, I would greatly appreciate hearing from you at samuelbaraujo19@gmail.com.

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1 Problems

1. Let $AXYZB$ be a convex pentagon inscribed in a semicircle of diameter AB . Denote by P, Q, R, S the feet of the perpendiculars from Y onto lines AX, BX, AZ, BZ , respectively. Prove that the acute angle formed by lines PQ and RS is half the size of $\angle XOZ$, where O is the midpoint of segment AB .

2 Solutions

2.1 Problem 1

3 Refereneces