Problem 1: A Medieval Word Problem

This problem is from *Miftāḥ Al-Ḥisab*, written in 1427 by Jamshid al-Kashi. Do you see any similarities to word problems in modern math books?

Two palm trees are perpendicular to the surface of the horizon. One of them is twenty cubits, and the other is twenty five cubits. The distance between the two trees is sixty cubits. Between them, there is a river and a pond. There is a bird at the top of each palm tree. The two birds saw a fish. So, they flew to it at the same time at an equal fixed speed in two straight lines. They both got to the fish at the same time. The fish is on a straight line connecting the bases of the two palm trees. Find the distance that each of them flew, and the distance of the fish to the roots of each one of the palm trees.

As always, show your work, fully explain and justify your answer. A solution mainly obtained by computers or calculators will not be accepted.

Posting Date 1/30/2021. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 by e-mail or hard-copy by noon on Feb 6, 2021. An email submission must be a single pdf file. Hard copy submissions must be dropped in the file holder at my office door (Hayes 319) and must include a time stamp.