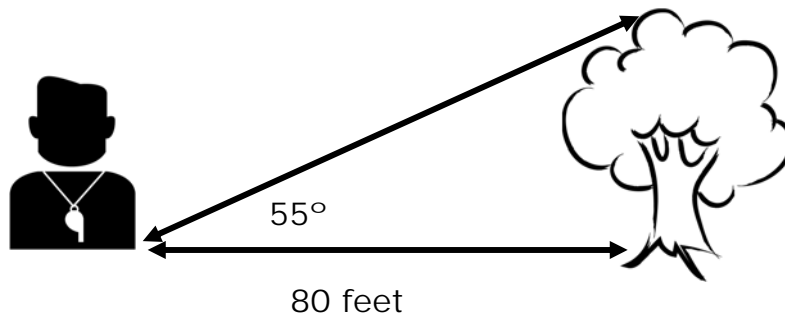


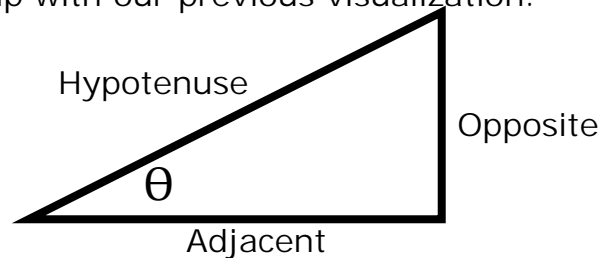
Using SohCahToa In Real World Problems Lesson

Coach Miller has a tree in his front yard and is wondering how tall it is. His friend loans him some surveying equipment and shows him how to use it. Coach Miller stands 80 feet from the tree and determines that the surveying equipment reads 55 degrees for him to see the top of the tree. How tall is the tree?

Step 1) Draw out the situation to make sense of it. Include all the data we are given.



Step 2) Let us see where the given measures stand trigonometrically. We have angle theta and the adjacent side from the measures that Coach Miller has taken. Matching it up with our previous visualization.



We are looking to determine the length of the **opposite** side.

Step 3) If we remember TOA. (Tangent θ = Opposite / Adjacent), we can apply that here.

$$\text{Tangent (55)} = \text{opposite} / \text{adjacent}$$

$$\text{Tan (55)} = x / 80 \quad \text{we can rewrite this as } x = (\text{tan } 55) 80 = 114.25$$

The tree is 114.25 feet tall.

