1 Computing the Height of Objects

Let $a, b, c \in \mathbb{R}^2$ be vectors as illustrated in the figure below. We know from the lecture that the angle α between two vectors a, c is defined by

$$\cos(\alpha) = \frac{a^\top c}{\|a\|_2 \|c\|_2}.$$

Use this equality to compute the height $\|b\|_2$ of the tree in the figure below. The angle $\alpha := 36.87°$ and the distance to the tree $a := (4, 0)^\top$ are given.

Solution:

heet_Cosine.pdf