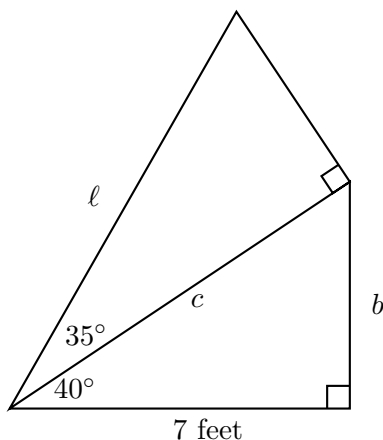


7. [8 points] Kiki is designing a sail for her new sailboat using two right triangles arranged as pictured in the figure below. The shared side between the triangles has length c .



Help Kiki by finding the lengths of b , c , and ℓ in **exact** form. None of your answers should include the letters b , c , or ℓ .

- a. [2 points] $b = \underline{7 \tan(40^\circ)}$
- b. [3 points] $c = \underline{7 / \cos(40^\circ)}$
- c. [3 points] $\ell = \underline{7 / (\cos(40^\circ) \cos(35^\circ))}$

8. [5 points] Suppose θ is an angle given in radians with $0 < \theta < \frac{\pi}{2}$ and with $\cos(\theta) = \frac{1}{3}$. Find the following in **exact** form (none of your answers should include the letter θ):

- (i) $\sin(\theta) = \underline{\sqrt{8}/3}$
- (ii) $\cos(\pi - \theta) = \underline{-1/3}$