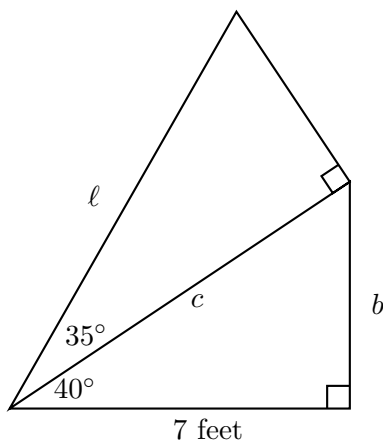


7. [8 points] Kiki is designing a sail for her new sailboat using two right triangles arranged as pictured in the figure below. The shared side between the triangles has length c .



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] $b =$ $7 \tan(40^\circ)$
- b. [3 points] $c =$ $7 / \cos(40^\circ)$
- c. [3 points] $\ell =$ $7 / (\cos(40^\circ) \cos(35^\circ))$
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) $\sin(\theta) =$ $\sqrt{8}/3$

(ii) $\cos(\pi - \theta) =$ $-1/3$