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 \( c \).

![Diagram of sailboat sails with angles and sides labeled]

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

a. [2 points] \( b = 7 \tan(40^\circ) \)

b. [3 points] \( c = \frac{7}{\cos(40^\circ)} \)

c. [3 points] \( \ell = \frac{7}{(\cos(40^\circ) \cos(35^\circ))} \)

8. [5 points] Suppose \( \theta \) 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 \( \theta \)):

(i) \( \sin(\theta) = \frac{\sqrt{8}}{3} \)

(ii) \( \cos(\pi - \theta) = -\frac{1}{3} \)