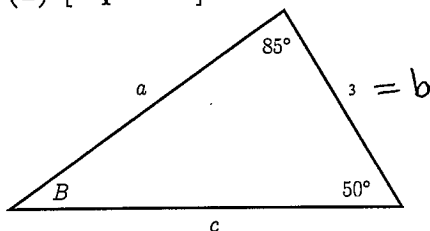


(1) [7 points] Solve the following triangle (round final answers to two decimal places.)



$$B = 180 - 85 - 50 = 45^\circ$$

$$\frac{\sin B}{b} = \frac{\sin(50)}{a}$$

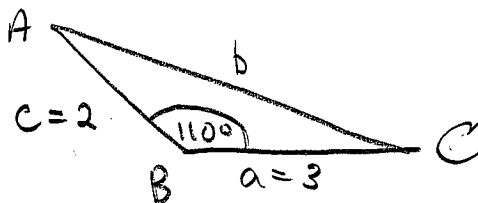
$$\therefore a = \frac{(3) \sin(50)}{\sin(45)} \approx 3.2501$$

$$\frac{\sin B}{b} = \frac{\sin(85)}{c}$$

$$\therefore c = \frac{3 \sin(85)}{\sin(45)} \approx 4.2265$$

$$\therefore B = 45^\circ, a = 3.25, c = 4.23$$

(2) [8 points] Solve the triangle with sides  $a = 3$ ,  $c = 2$  and angle  $B = 110^\circ$ . (round final answers to two decimal places.)



$$\therefore b^2 = a^2 + c^2 - 2ac \cos(B)$$

$$\therefore b = \sqrt{3^2 + 2^2 - (2)(3)(2) \cos(110^\circ)} \approx 4.1357$$

$$\begin{aligned} \frac{\sin A}{a} &= \frac{\sin B}{b} \Rightarrow A = \sin^{-1} \left[ \frac{a \sin B}{b} \right] \\ &= \sin^{-1} \left[ \frac{3 \sin(110)}{4.1357} \right] \\ &\approx 42.9723^\circ \end{aligned}$$

$$\therefore C = 180 - A - B \approx 180 - 42.9723 - 110 = 27.0277$$

$$\therefore b \approx 4.14, A \approx 42.97^\circ, C \approx 27.03$$