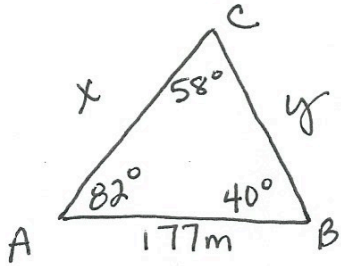


9) A surveyor wants to find the distance from points A and B to point C, which is on a mountain top. These three points form a triangle. Because point C can be sighted from both A and B, he knows that  $m\angle A = 82^\circ$  and  $m\angle B = 40^\circ$ . In addition, the distance from A to B is 177 meters. Find the lengths of AC and BC. Draw a diagram.



So  $\angle C = 180 - 82 - 40 = 58^\circ$

Solve for x

$$\frac{\sin 58}{177} = \frac{\sin 40}{x}$$

$$x \frac{\sin 58}{\sin 58} = \frac{177 \sin 40}{\sin 58}$$

$$x = 134.16m$$

Solve for y

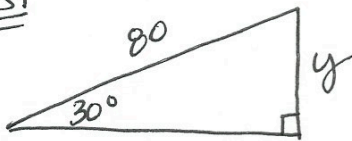
$$\frac{\sin 58}{177} = \frac{\sin 82}{y}$$

$$y \frac{\sin 58}{\sin 58} = \frac{177 \sin 82}{\sin 58}$$

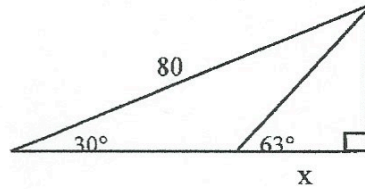
$$y = 206.68m$$

10) Find x. Show any sub-problems you use.

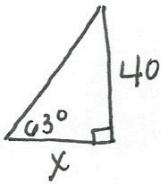
First



30-60-90, So  $y = 40$



Then



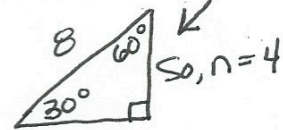
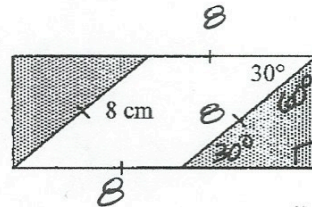
$$\tan 63 = \frac{40}{x}$$

$$x \tan 63 = 40$$

$$x = 40 / \tan 63$$

$$x = 20.38$$

11) Find the shaded area. Show all work. The figure at right is a rectangle (5 pts).



$$n\sqrt{3} = 4\sqrt{3}$$

$$A_{\Delta} = \frac{b \cdot h}{2} = \frac{4\sqrt{3} \cdot 4}{2}$$

$$A_{\Delta} = \frac{16\sqrt{3}}{2} = 8\sqrt{3} \approx 13.86cm^2$$

$$A = 13.86cm^2 \times 2 = 27.71cm^2$$