

Before we begin, are there any questions from last day's work **5.2.1**

pp.61-62 1,3c,4,6,8 pp.69-70 1c,3,5,7,9

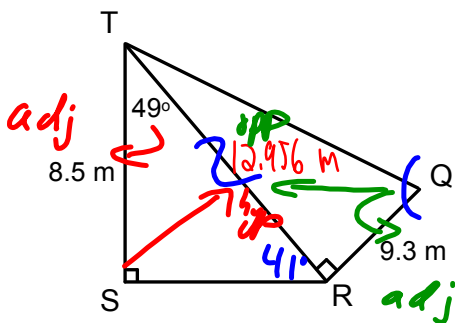
(Tuesday's quiz will be based on the first three lessons; this includes today's)

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) solve trigonometry questions involving more than one triangle.

5.3.1: Solving Problems Involving More Than One Triangle

Ex. 1 Determine the measure of $\angle Q$.Date: Apr. 27/18

Find TR first

$$\text{CAH: } \cos 49^\circ = \frac{8.5}{TR}$$

$$TR = \frac{8.5}{\cos 49^\circ}$$

$$\doteq 12.9561$$

$$\doteq 12.956 \text{ m}$$

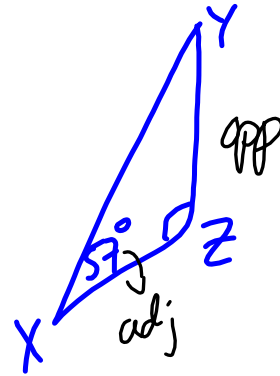
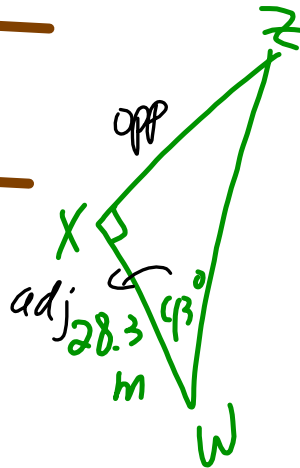
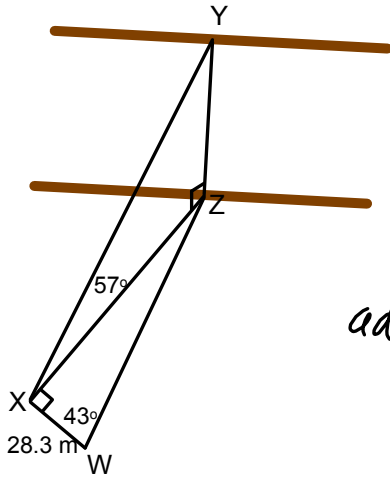
$$\text{TOA: } \tan Q = \frac{12.956}{9.3}$$

$$Q = \tan^{-1}\left(\frac{12.956}{9.3}\right)$$

$$\doteq 54.328$$

$$\doteq 54.33^\circ$$

Ex. 2 Determine the height of the cliff, in metres.



$$\text{TOA: } \tan 43^\circ = \frac{XZ}{28.3}$$

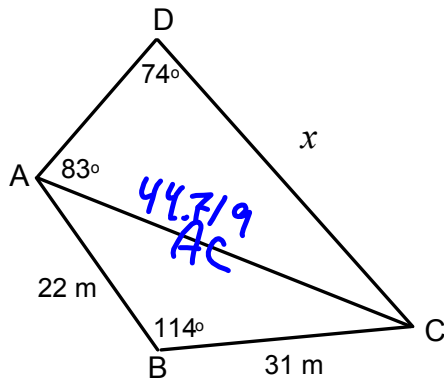
$$\begin{aligned} XZ &= 28.3 \tan 43^\circ \\ &\approx 26.3901 \\ &\approx 26.390 \end{aligned}$$

$$\begin{aligned} \tan 57^\circ &= \frac{YZ}{XZ} \\ &= \frac{YZ}{26.390} \end{aligned}$$

$$\begin{aligned} YZ &= 26.390 \tan 57^\circ \\ &\approx 40.6373 \\ &\approx 40.637 \end{aligned}$$

\therefore the cliff's height is 40.637 m

Ex. 3 Determine the value of x .



Find AC:

$$AC^2 = 22^2 + 31^2 - 2(22)(31)\cos 114^\circ$$

$$AC = \sqrt{1999.78}$$

$$\doteq 44.7189$$

$$\doteq 44.719$$

Now, sine law:

$$\frac{x}{\sin 83^\circ} = \frac{44.719}{\sin 74^\circ}$$

$$x = \sin 83^\circ \times \frac{44.719}{\sin 74^\circ}$$

$$\doteq 46.1743$$

$$\doteq 46.174 \text{ m}$$