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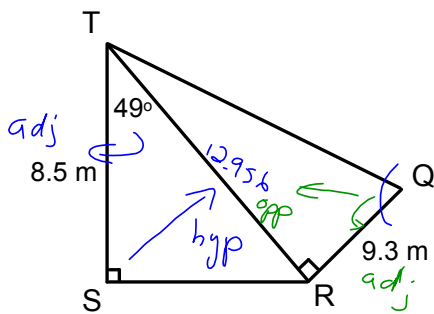
(Tuesday's quiz will be based on the first three lessons; this includes today's)

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: _Nov. 15/18_

T

49°

adj

8.5 m

12.956

hyp

opp

Q

9.3 m

adj.

S   R

Find TR first.

CAH : $\cos 49° = \dfrac{8.5}{TR}$

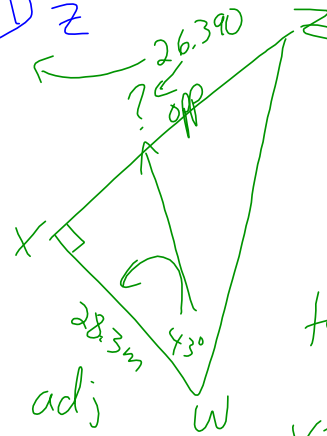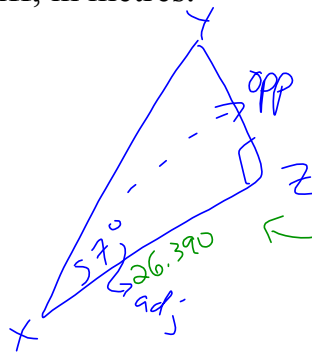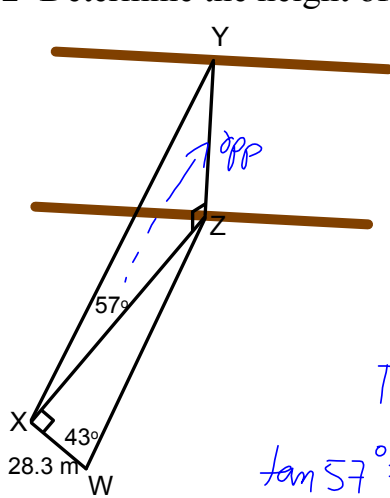$TR = \dfrac{8.5}{\cos 49°}$

$\doteq 12.9561$

$\doteq 12.956 \text{ m}$

TOA

$\tan Q = \dfrac{12.956}{9.3}$

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

$\doteq 54.328$

$\doteq 54.33°$
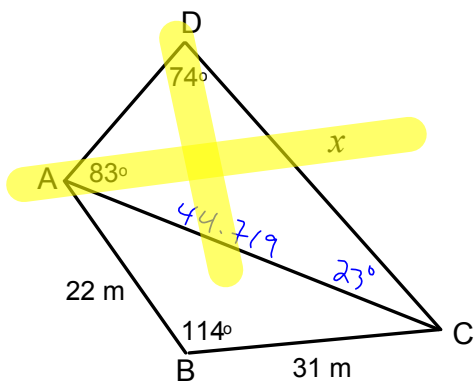
Ex. 2 Determine the height of the cliff, in metres.

$$TOA$$

$$\tan 57° \doteq \frac{YZ}{26.390}$$

$$YZ \doteq 26.390 \tan 57°$$

$$\doteq 40.6370$$

$$\doteq 40.637 \, m$$

∴ the cliff's height is 40.637 m.

$$TOA$$

$$\tan 43° = \frac{XZ}{28.3}$$

$$XZ = 28.3 \tan 43°$$

$$= 26.3901$$

$$\doteq 26.390 \, m$$

Ex. 3 Determine the value of x.

Find AC first

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

$$AC \doteq \sqrt{1999.7887}$$

$$\doteq 44.7189$$

$$\doteq 44.719 \text{ m}$$

Now use the sine law:

$$\frac{x}{\sin 83°} \doteq \frac{44.719}{\sin 74°}$$

$$x \doteq \sin 83° \times \frac{44.719}{\sin 74°}$$

$$\doteq 46.1743$$

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