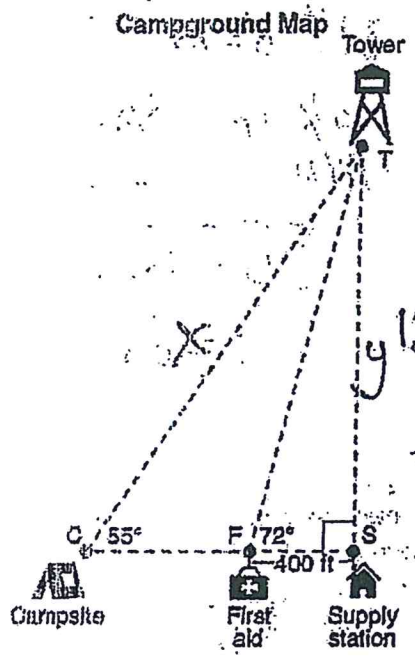
Compound Right Triangles (Reflexive)

4. The map of a campground is shown below. Campsite C, first aid station F, and supply station S lie along a straight path. The path from the supply station to the tower, T, is perpendicular to the path from the supply station to the campsite. The length of path $\overline{FS}$ is 400 feet. The angle formed by path $\overline{TF}$ and path $\overline{FS}$ is 72°. The angle formed by path $\overline{TC}$ and path $\overline{CS}$ is 55°. Determine and state, to the *nearest foot*, the distance from the campsite to the tower.



ST is a side in both triangles

$\tan 72 = \frac{y}{400}$

$3.077 = \frac{y}{400}$

$y = 1231$

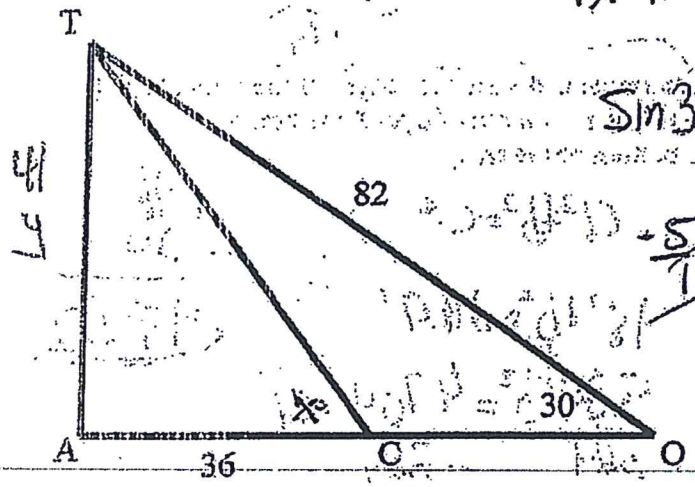
$\sin 55 = \frac{1231}{x}$

$.819 = \frac{1231}{x}$

$\frac{.819x}{.819} = \frac{1231}{.819}$

$x = 1503$

5. Find the measure of $\angle TCA$ in the diagram of right triangle TAO below to the nearest tenth of a degree.



TA is a side in both triangles

$\sin 30 = \frac{y}{82}$

$\frac{5}{1} = \frac{y}{82}$

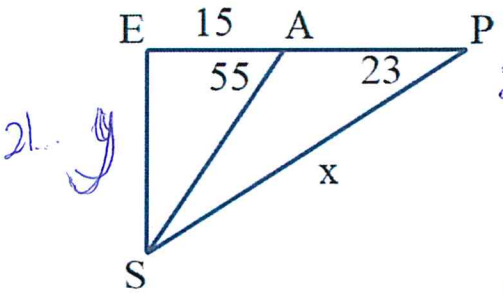
$y = 41$

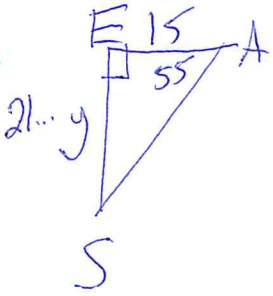
$\tan x = \frac{41}{36}$

$x = \tan^{-1}\frac{41}{36}$

$x = 48.7°$

3. Find the measure of $\overline{SP}$ in the diagram of right triangle SEP below to the nearest unit.

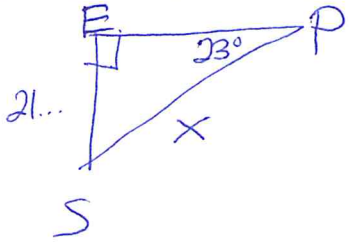




$\tan 55 = \frac{y}{15}$

$y = 15 \tan 55$

$y = 21...$

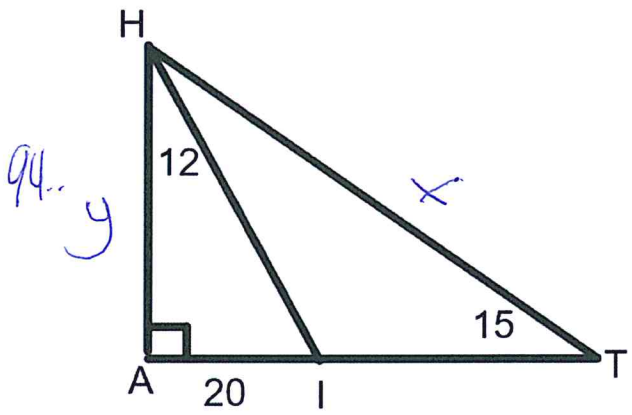


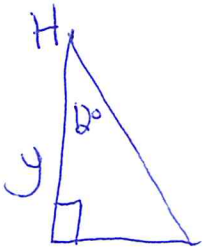
$\sin 23 = \frac{21...}{x}$

$\frac{x \sin 23}{\sin 23} = \frac{21...}{\sin 23}$

$x = 55$

4. Find the measure of $\overline{HT}$ in the diagram of right triangle HAT below to the nearest unit.

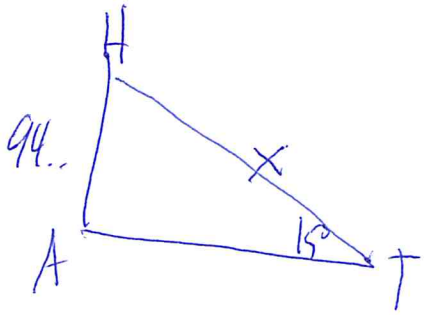




$\tan 12 = \frac{20}{y}$

$\frac{y \tan 12}{\tan 12} = \frac{20}{\tan 12}$

$y = 94...$



$\sin 15 = \frac{94...}{x}$

$\frac{x \sin 15}{\sin 15} = \frac{94...}{\sin 15}$

$x = 364$