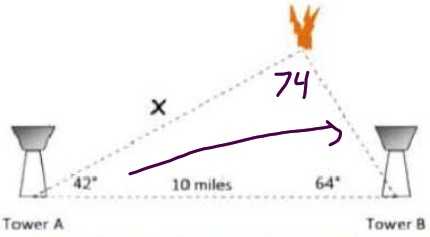
Name:_____ Date:_____

Period:____ Mr. Valentino

Aim: Law of Sines (day 2)

Do Now: Fire towers A and B are located 10 miles apart. Rangers at fire tower A spots a fire at 42°, and rangers at fire tower B spot the same fire at 64°. How far from tower A is the fire to the nearest tenth of a mile?

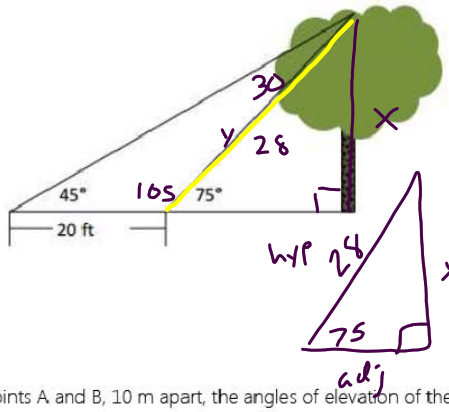


$\frac{\sin 64}{x} = \frac{\sin 74}{10}$

$\frac{10 \sin 64}{\sin 74} = \frac{x \sin 74}{\sin 74}$

$x = 9.4$ mi

1. Find the height of the tree below to the nearest foot.



$\frac{\sin 30}{20} = \frac{\sin 45}{y}$

$\frac{y \sin 30}{\sin 30} = \frac{20 \sin 45}{\sin 30}$

$y = 28$ ft

hyp 28, x opp, 75 adj

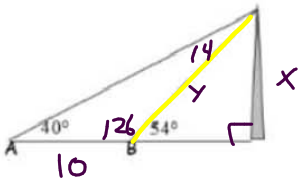
SOH CAH TOA

$\sin 75 = \frac{x}{28}$

$x = 28 \sin 75$

$x = 27$ ft

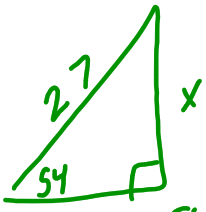
2. From points A and B, 10 m apart, the angles of elevation of the top of a tower are 40° and 54°, as shown. Find the tower's height (to the nearest meter).



$\frac{\sin 14}{10} = \frac{\sin 40}{y}$

$\frac{y \sin 14}{\sin 14} = \frac{10 \sin 40}{\sin 14}$

$y = 27$ m

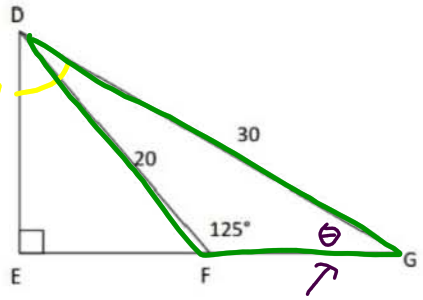


$\frac{\sin 90}{27} = \frac{\sin 54}{x}$

$\sin 54 = \frac{x}{27}$ $x = 22$

$x = 22$

3. For the figure below find $m\angle EDG$ to the nearest whole degree.



$\frac{\sin G}{20} = \frac{\sin 125}{30}$

$\frac{20\sin 125}{30} = \frac{30\sin G}{30}$

$\frac{20\sin 125}{30} = \sin G$

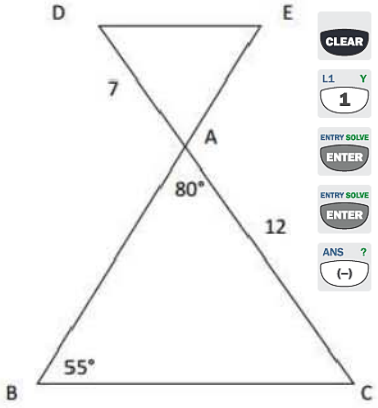
33

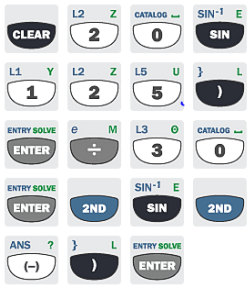
90+33 = 123

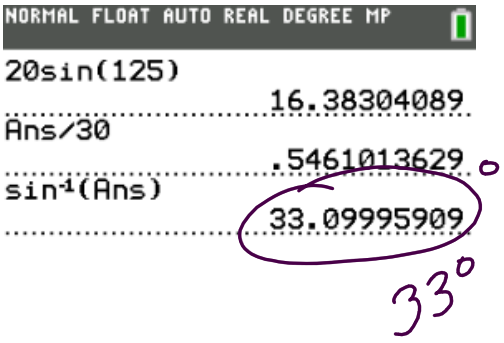
570

Now you try!

4. ΔDEA ~ ΔCBA, Find DE to the nearest whole number

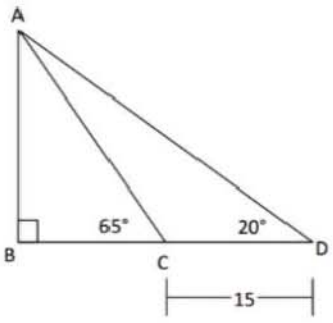




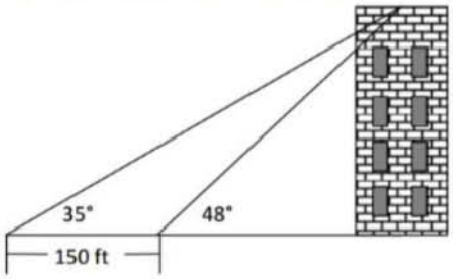


33°

5. For the figure below find BC to the nearest whole number. CD=15.



6. Find the height of the building in the figure below to the nearest foot.



7. Suppose that you are the pilot of a commercial airliner. You find it necessary to detour around a group of thundershowers (see figure). You turn at an angle of 21° to your original path, fly for a while, turn, and intercept your original flight path at an angle of 35°, 70 kilometers from where you left it. How much further did you have to go because of the detour?