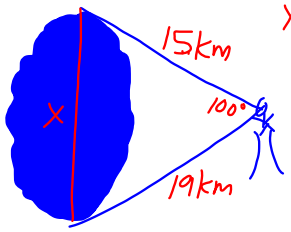
Law of Sines and Law of Cosines
Word Problems

1. DRAW A PICTURE!!!
2. SHOW ALL WORK!!!
3. FIND ALL MEASURES BEING ASKED FOR!!!
4. WRITE A SENTENCE and LABEL YOUR ANSWER!!!

Apr 23-10:32 AM

1. A ranger in an observation tower can sight the north end of a lake 15 km away and the south end of the same lake 19 km away. The angle between these two lines of sight is 100°. How long is the lake?



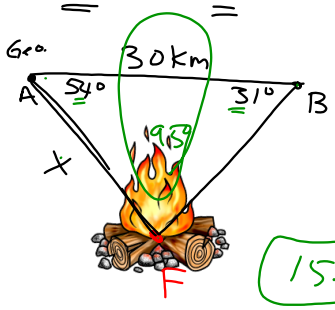
$x^2 = 15^2 + 19^2 - 2 \cdot 19 \cdot 15 \cos 100$

$\sqrt{x^2} = \sqrt{\quad}$

$x = 26.2\text{ km}$

Apr 23-10:35 AM

2. **In Evergreen National Park, fire tower A is located 30 km north of fire tower B. Ranger George is stationed in tower A and spots a fire at point F. Ranger Barbara is stationed in tower B and also sees the fire. If $m\angle FAB = 54°$ and $m\angle ABF = 31°$, how far is George from the fire?**



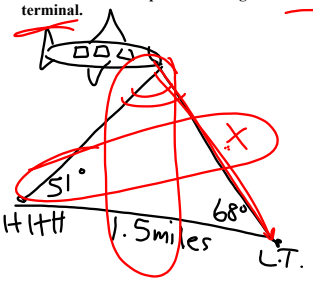
$\frac{\sin 95}{30} = \frac{\sin 31}{x}$

$x \cdot \frac{\sin 95}{\sin 95} = 30 \cdot \frac{\sin 31}{\sin 95}$

15.5 km

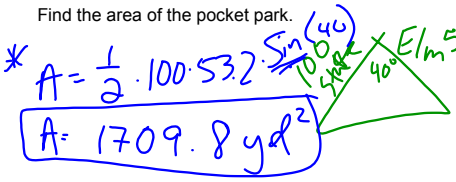
Apr 23-10:37 AM

3. **The Hubert H. Humphrey (HHH) Terminal is located 1.5 miles away from the Lindbergh Terminal of the Minnepolis/St. Paul International Airport. An airplane approaches and could land at either terminal. The angle of elevation from the HHH terminal to the airplane is 51 degrees, and the angle of elevation from the Lindbergh Terminal to the airplane is 68 degrees. Find the distance from the plane to the closer terminal.**



Apr 23-10:41 AM

4. In the middle of town, State and Elm streets meet at an angle of 40°. A triangular pocket park between the streets stretches 100 yards along State Street and 53.2 yards along Elm Street. Hoa and Cat walk around the pocket park every day at lunchtime. Find the area of the pocket park.



$A = \frac{1}{2} \cdot 100 \cdot 53.2 \cdot \sin(40)$

$A = 1709.8\text{ yd}^2$

Apr 7-7:58 AM

Assignment:

Worksheet

Apr 11-12:48 PM