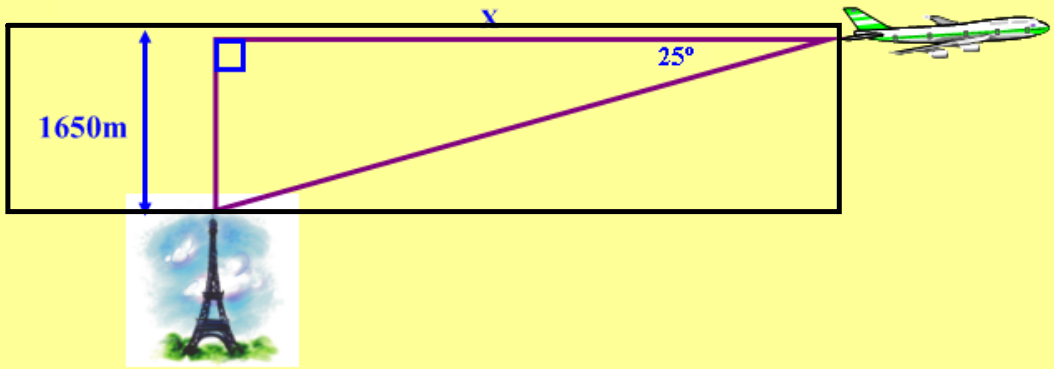
Warm Up Questions !!

#1 The angle of depression from a plane in the air to the top of a tower is 25°. The altitude of the plane is 1650m higher than the top of the tower. What is the horizontal distance from the plane to the tower?



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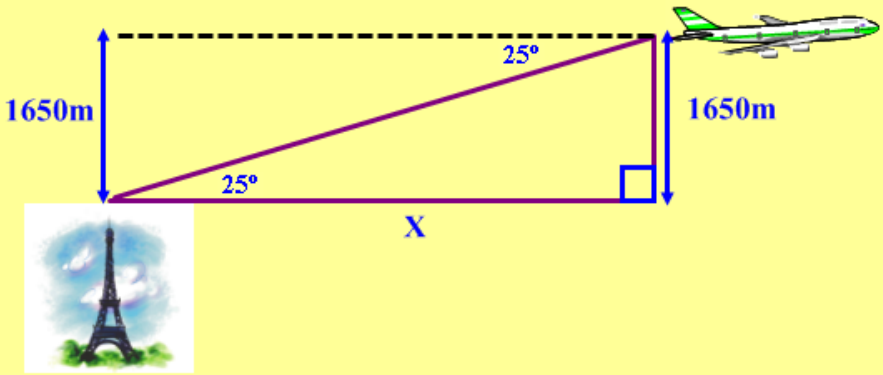
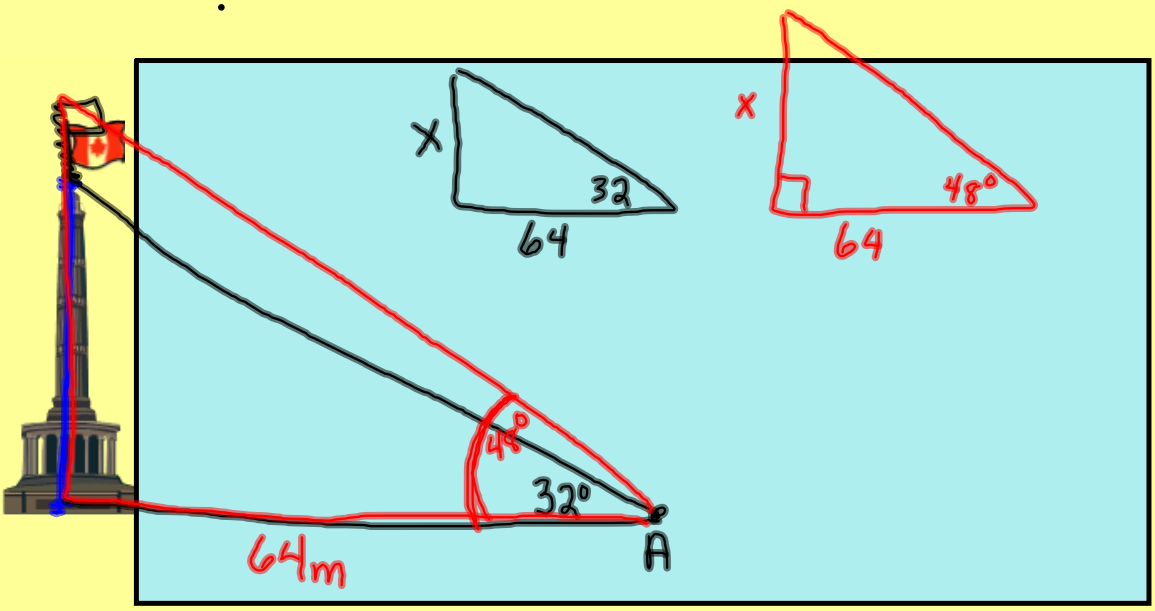
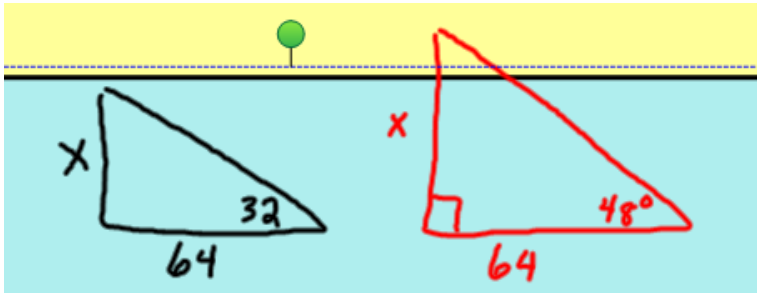


#2 The angle of elevation to the top of a building from point A is 32°. Point A is located 64.0m from the base of the building. A flagpole is on the top of the building. The angle of elevation from point A to the top of the flagpole is 48°. What is the length of the flagpole?





$\tan\theta = \frac{opp}{adj}$

$\tan 32 = \frac{x}{64}$

$0.6249 = \frac{x}{64}$

$x = 39.99$

$\tan\theta = \frac{opp}{adj}$

$\tan 48 = \frac{x}{64}$

$1.1106 = \frac{x}{64}$

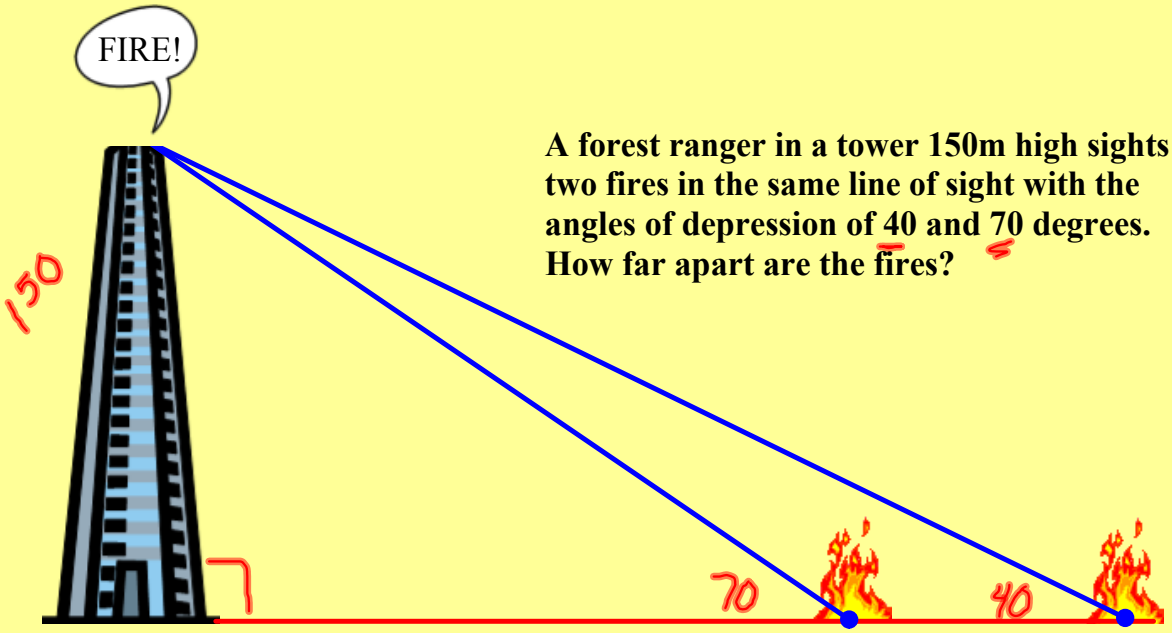
$x = 71.1$

Flagpole ☺

$71.1 - 39.99 = 31.1$

The flagpole is 31.1 m tall.

A forest ranger in a tower 150m high sights two fires in the same line of sight with the angles of depression of 40 and 70 degrees. How far apart are the fires?



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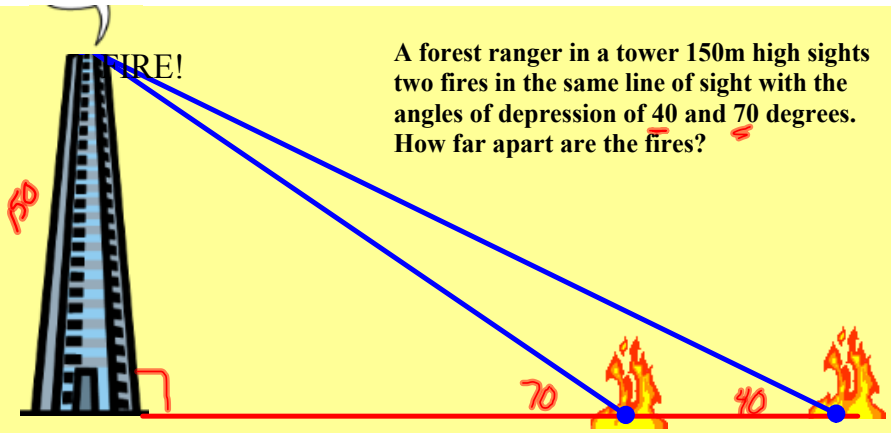

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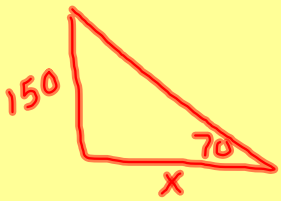


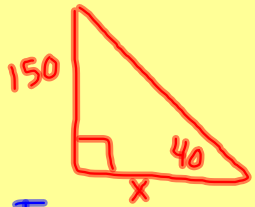
$\tan\theta = \frac{opp}{adj}$

$\tan 70 = \frac{150}{x}$

$2.7475 = \frac{150}{x}$

$2.7475x = 150$

$x = 54.6$



$\tan\theta = \frac{opp}{adj}$

$\tan 40 = \frac{150}{x}$

$0.8391 = \frac{150}{x}$

$0.8391x = 150$

$x = 178.8$

$$\begin{array}{r} 178.8 \\ -\ 54.6 \\ \hline 124.2 \end{array}$$

The fires are 124.2m apart.