

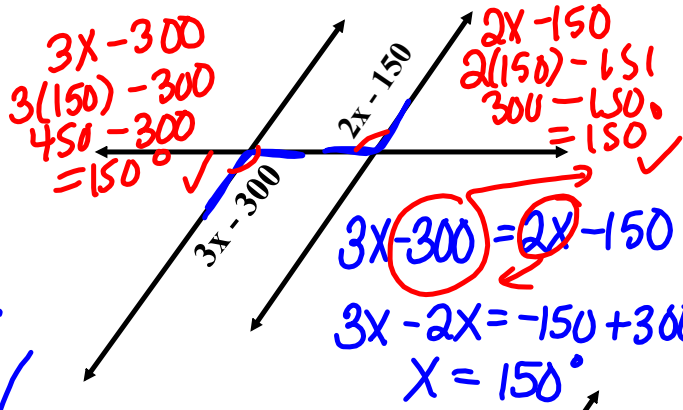


$$2x + 2 = 64 - 2$$

$$2x = 62$$

$$x = 31$$

$$2(31) + 2 = 62 + 2 = 64^\circ \checkmark$$



$$3x - 300 = 2x - 150$$

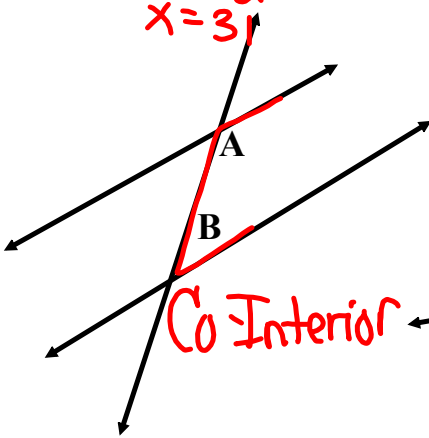
$$3(150) - 300 = 2(150) - 150$$

$$450 - 300 = 300 - 150$$

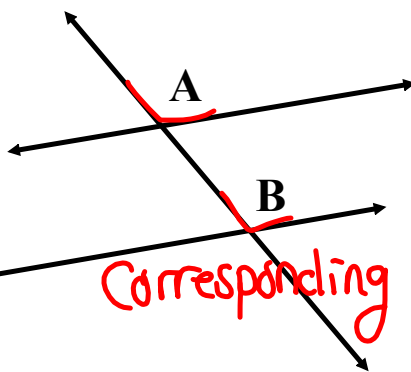
$$= 150^\circ \checkmark$$

$$3x - 2x = -150 + 300$$

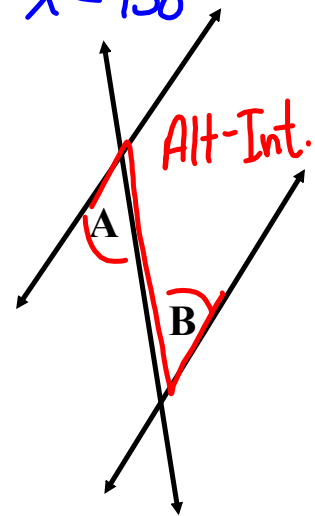
$$x = 150^\circ$$



Co-Interior



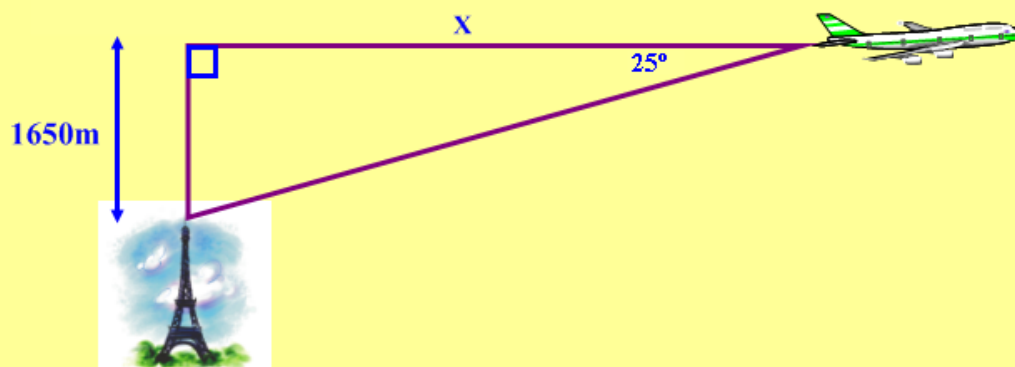
Corresponding



Alt-Int.

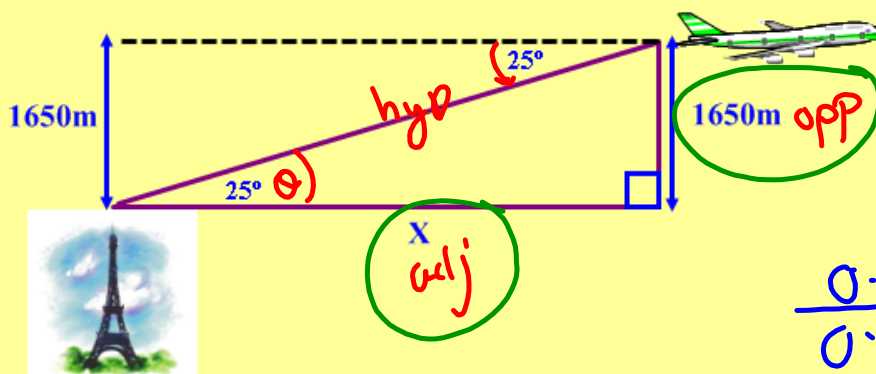
## Warm Up Questions !!

- #1 The angle of ~~depression~~ <sup>elevation</sup> from a plane in the air to the top of a tower is  $25^\circ$ . 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?



# Warm Up Questions !!

- #1 The angle of depression from a plane in the air to the top of a tower is  $25^\circ$ . 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?



$$\tan \theta = \frac{o}{a}$$

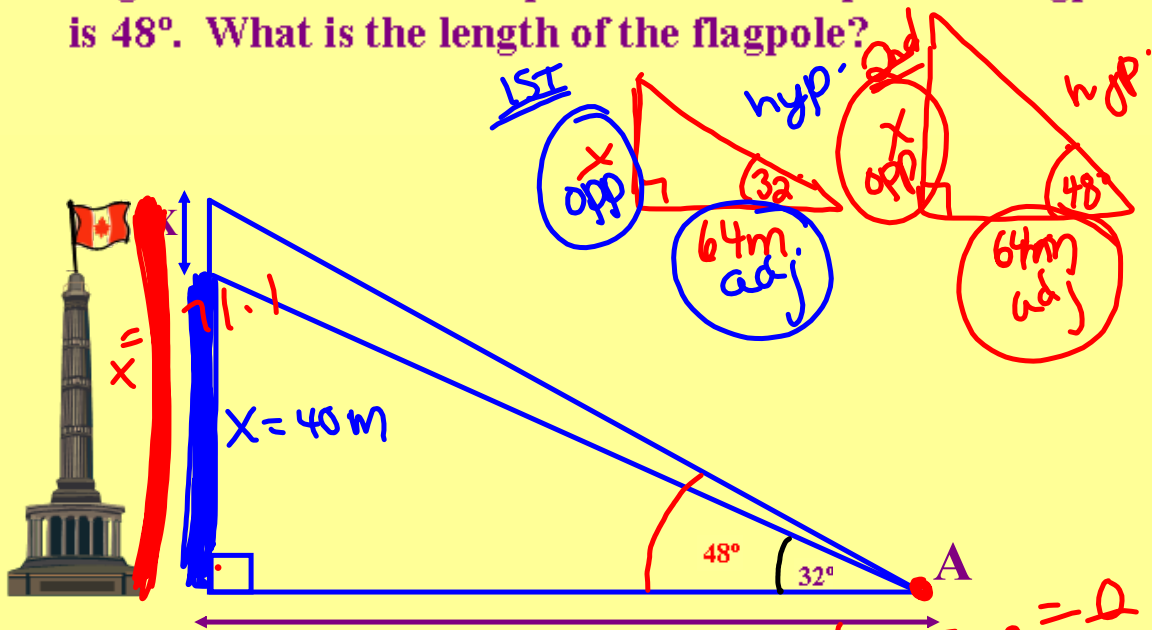
$$\tan 25^\circ = \frac{1650}{x}$$

$$\frac{0.4663}{1} = \frac{1650}{x}$$

$$\frac{0.4663x}{0.4663} = \frac{1650}{0.4663}$$

$$x = 3538.4m$$

#2 The angle of elevation to the top of a building from point A is  $32^\circ$ . 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  $48^\circ$ . What is the length of the flagpole?



1st

$$\tan \theta = \frac{o}{a}$$

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

$$\frac{0.6249}{1} = \frac{x}{64}$$

$$x = 40.0m$$

$71.1 - 40 = 31.1m$

2nd

$$\tan \theta = \frac{o}{a}$$

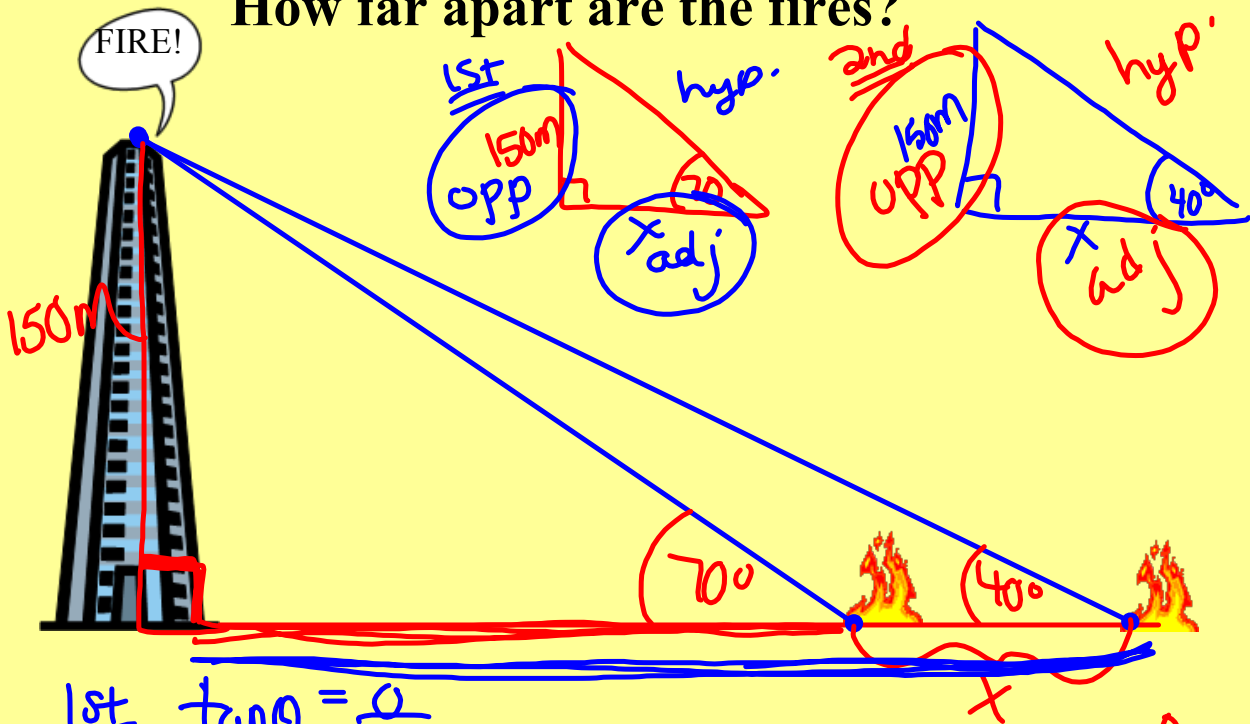
$$\tan 48^\circ = \frac{x}{64}$$

$$\frac{1.11061}{1} = \frac{x}{64}$$

$$x = 71.1$$

**Exam Question**

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



1st  $\tan \theta = \frac{o}{a}$   
 $\tan 70^\circ = \frac{150}{x}$   
 ~~$2.74755 = \frac{150}{x}$~~   
 $2.7475x = 150$   
 $2.7475 \quad 2.7475$

2nd  $\tan \theta = \frac{o}{a}$   
 $\tan 40^\circ = \frac{150}{x}$   
 $0.8391 = \frac{150}{x}$

$x = 54.6m$   
 $178.8 - 54.6 = 124.2m$

$0.8391x = 150$   
 $0.8391 \quad 0.8391$   
 $x = 178.8$

