

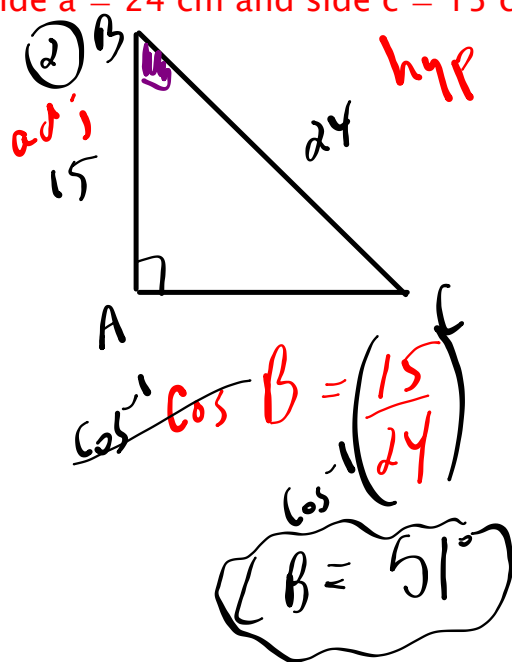
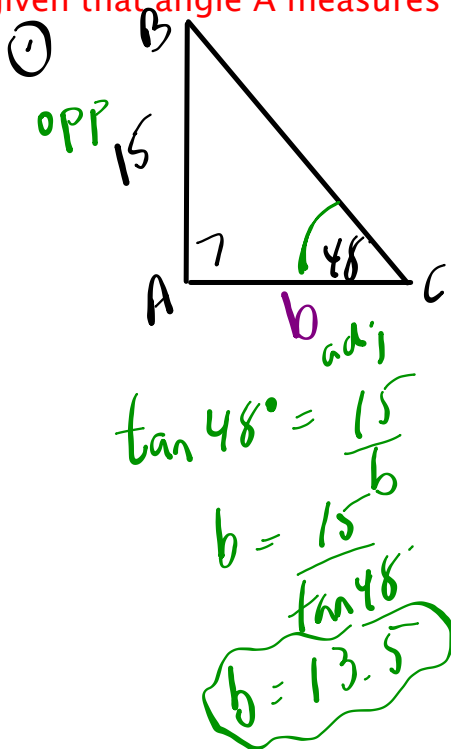
## Warm Up...

1. Sketch the following triangle and find side  $b$ : *SOH CAH TOA*

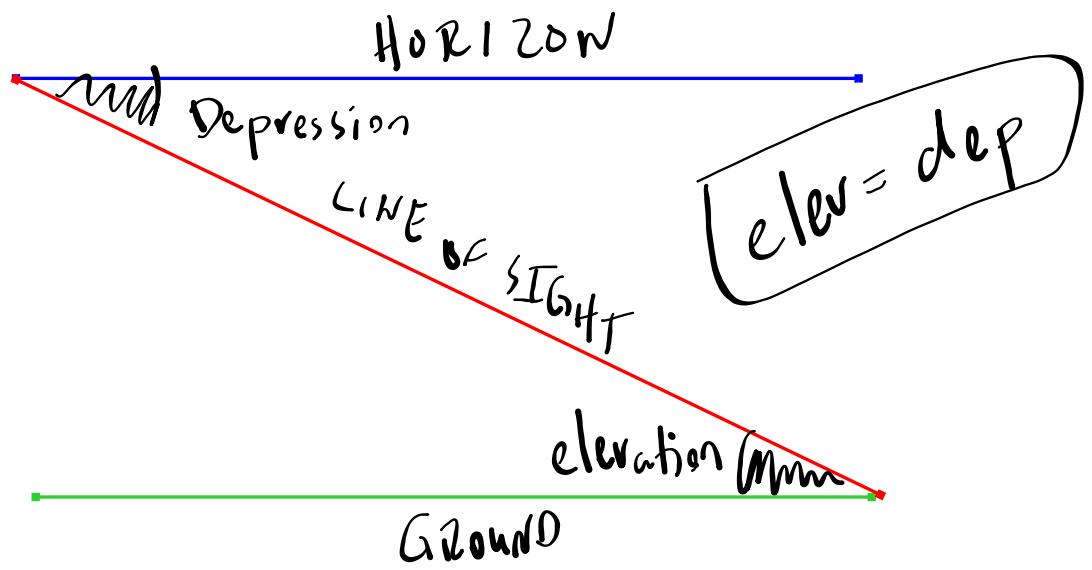
$\triangle ABC$ , given that angle A measures  $90^\circ$ , angle C measures  $48^\circ$  and side  $c = 15$  cm.

2. Sketch the following triangle and find the measure of angle B :

$\triangle ABC$ , given that angle A measures  $90^\circ$ , side  $a = 24$  cm and side  $c = 15$  cm.



Review

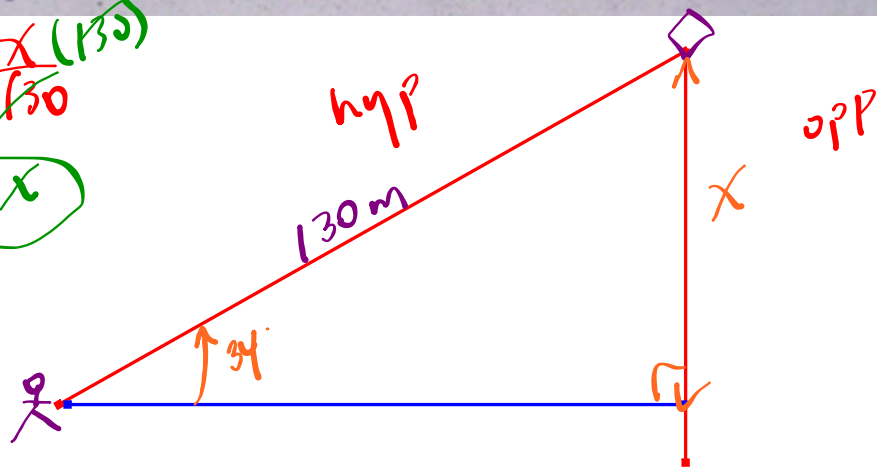


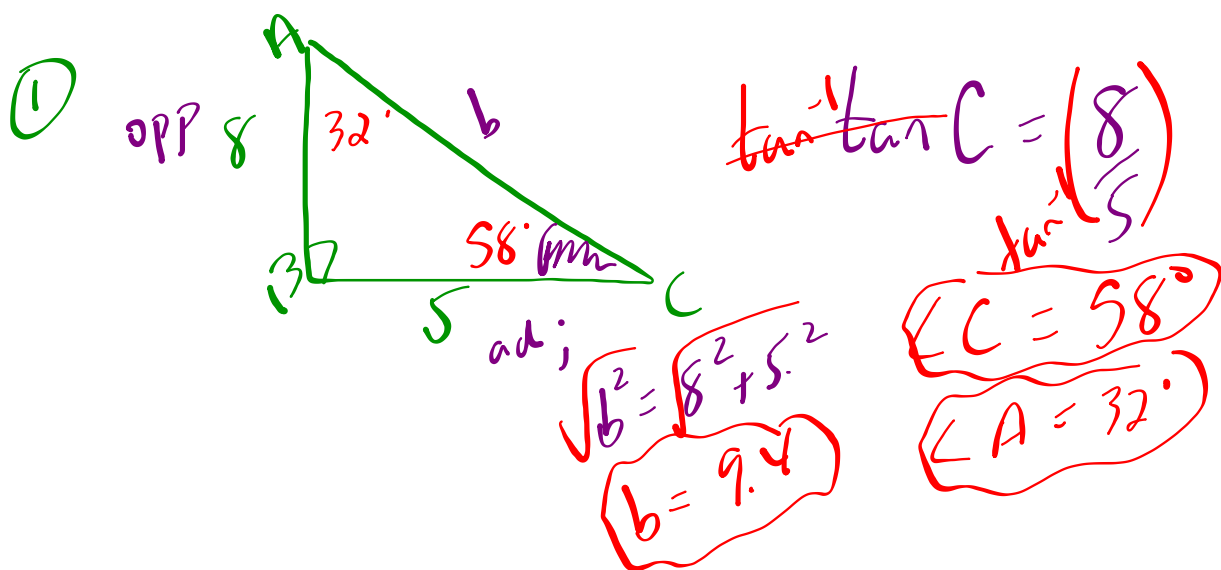
How ???  
 (6)

16. Sharon is flying a kite on a string 130 m long. Determine the height of the kite if the string is at an angle of  $34^\circ$  to the ground. What assumptions are you making?

$$130 \sin 34^\circ = \frac{x}{130} (130)$$

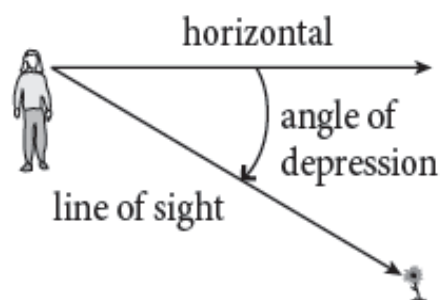
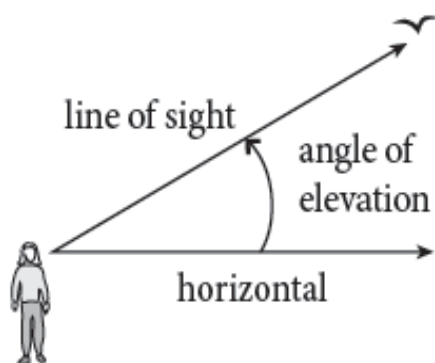
$$72.7 \text{ m} = x$$





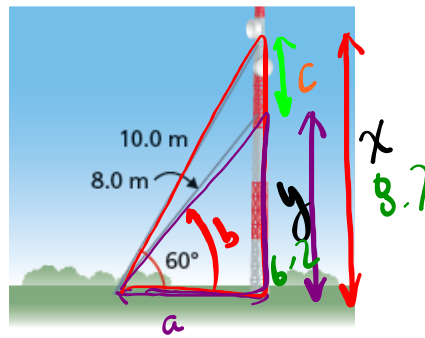
**REMEMBER...**

- An *angle of elevation* is measured from the horizontal upwards.
- An *angle of depression* is measured from the horizontal downwards.



**MORE APPLICATIONS...Example #1:**

A communications tower has many guy wires supporting it. Two of these guy wires are 10.0 m and 8.0 m long. They are attached at the same point on the ground. The longer wire has an angle of inclination of 60°.



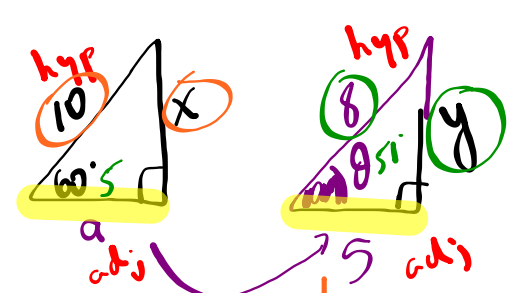
- a) How far from the base of the tower are the wires attached on the ground?
  - b) What is the angle of inclination of the shorter guy wire?
  - c) How far apart are the points where the guy wires are attached to the tower?
- Give the measures to the nearest tenth.

a)  $10 \cos 60^\circ = a$  (40)

$5 \text{ m} = a$

b)  $\cos \theta = \left( \frac{5}{8} \right)$

$\theta = 51^\circ$



c)  $10 \sin 60^\circ = \frac{x}{10}$   
 $8.7 = x$

$\sin 51^\circ = \frac{y}{8}$   
 $b, d = y$

2.7 Solving Problems Involving More than One Right Triangle

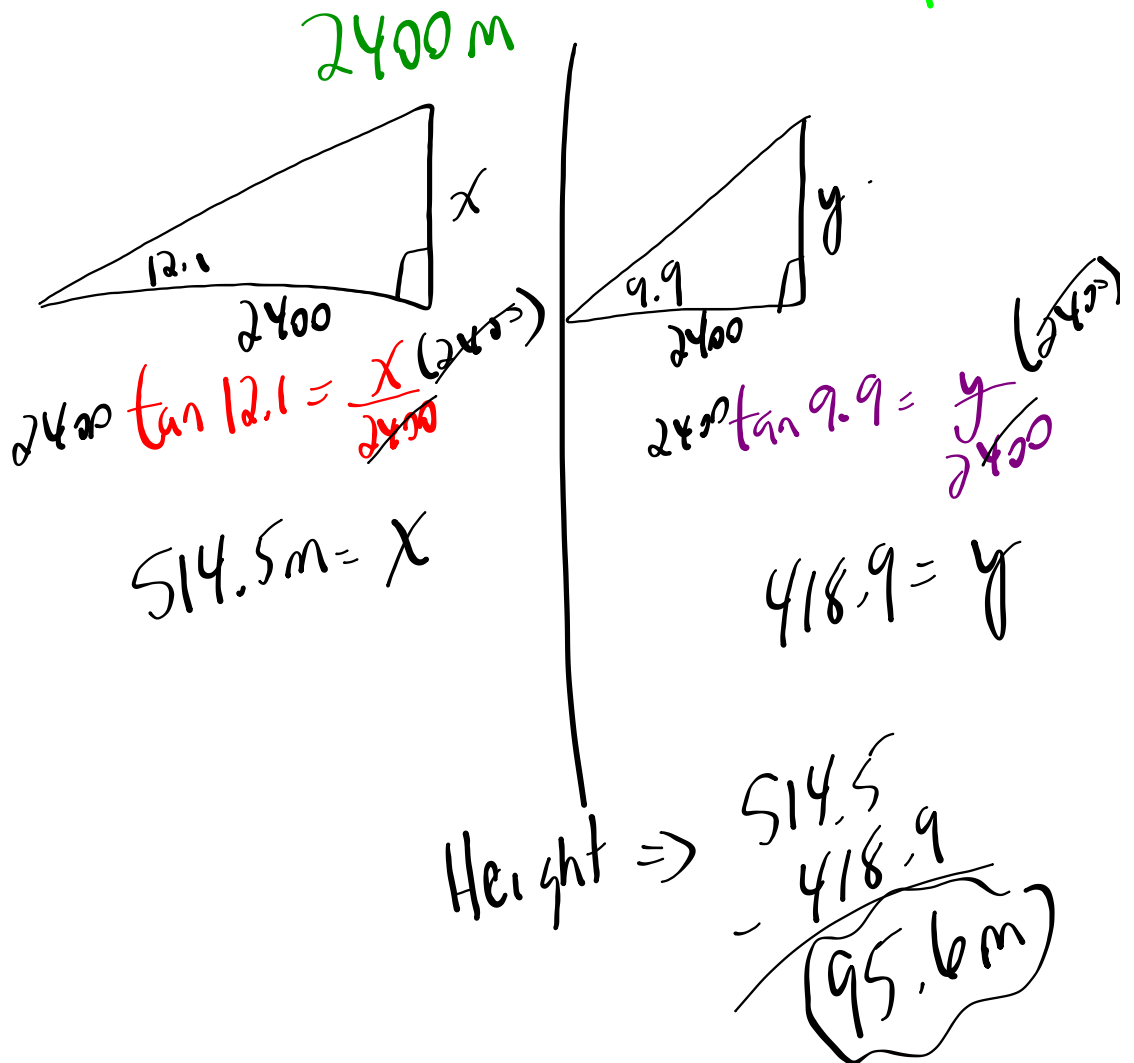
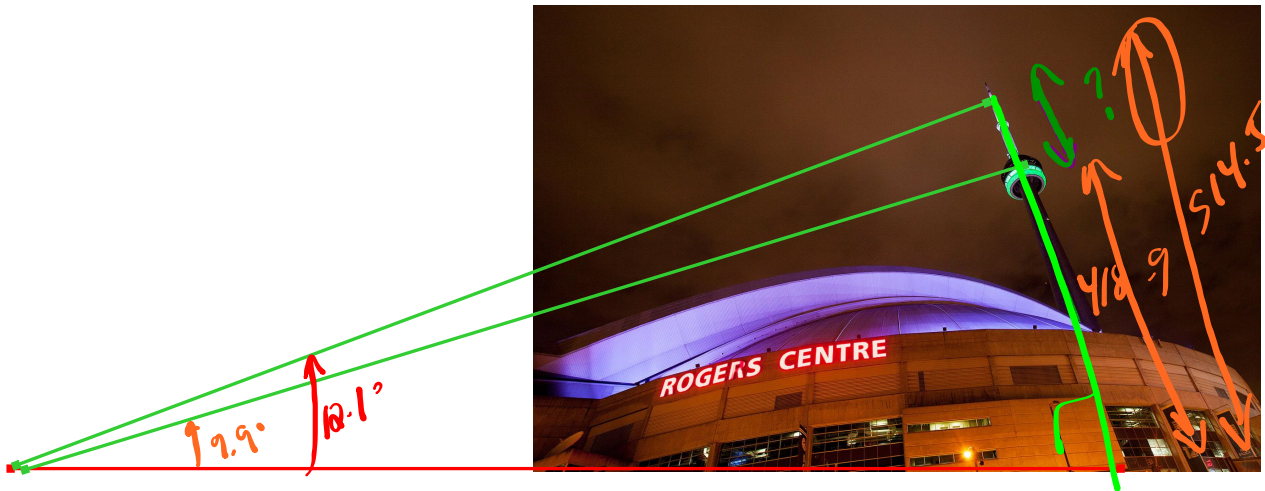
Distance =  $8.7 - 6.2 = 2.5 \text{ m}$



13. a) 5.0 m                      b) 51.3°  
 c) 2.4 m

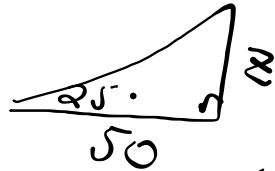
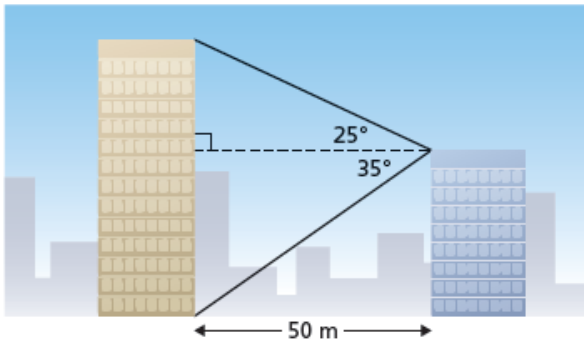
### EXAMPLE #2:

An antenna is on the top of the CN Tower in Toronto. From a point 2400 m away, the angles of elevation to the top and bottom of the antenna are 12.1 and 9.9° respectively. How tall is the antenna?

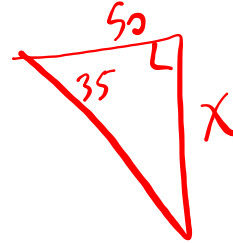
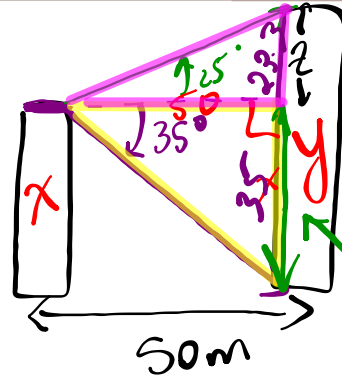


**EXAMPLE #3:**

9. Two office towers are 50 m apart. From the top of the shorter tower, the angle of depression of the base of the taller tower is  $35^\circ$ . The angle of elevation of the top of this tower is  $25^\circ$ . Determine the height of each tower to the nearest metre.



$$50 \tan 25^\circ = \frac{x}{50}$$



$$50 \tan 35^\circ = \frac{x}{50}$$

shorter

$$35m = x$$

2.7 Solving Problems Involving More than One Right Triangle

$$23.3 = x$$

Taller  $\Rightarrow 35 + 23.3$   
 $58.3m$



HOMEWORK... Do # 5 - 11 (omit 8)

 Worksheet - Applications.pdf

## Attachments

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Worksheet - Applications.pdf