

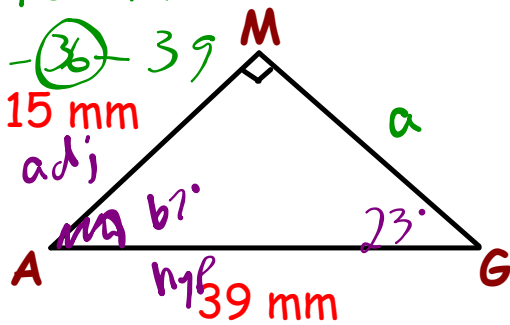
## HOMWORK QUESTIONS...

None

SOH CAH TOA

EXAMPLE - Solve the triangle (find ALL sides and angles)

S-12-13  
15 - 36 - 39



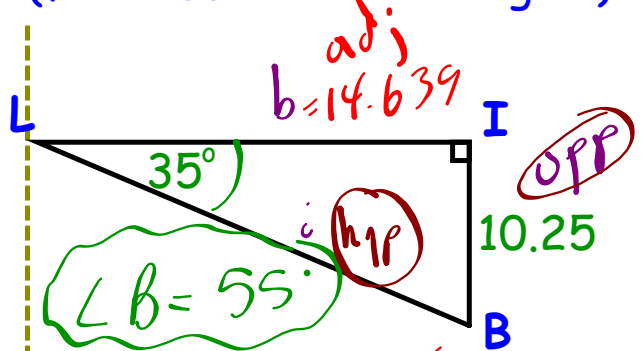
$$a = \sqrt{39^2 - 15^2}$$

$$a = 36$$

$$\cos A = \frac{15}{39}$$

$$\angle A = 67^\circ$$

$$\angle G = 23^\circ$$



$$\tan 35^\circ = \frac{10.25}{b}$$

$$b = \frac{10.25}{\tan 35^\circ}$$

$$b = 14.639$$

$$\sin 35^\circ = \frac{10.25}{i}$$

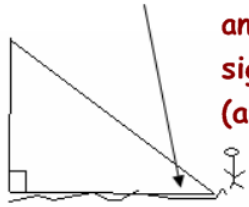
$$i = \frac{10.25}{\sin 35^\circ}$$

$$i = 17.870$$

# Applications of Right Angle Trigonometry

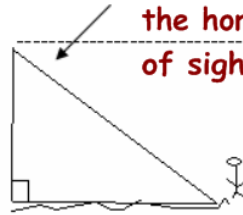
## ANGLE OF ELEVATION/DEPRESSION

Angle of elevation - is the angle between the ground and the line of sight. (angle of inclination)



Always from the GROUND up

Angle of Depression - is the angle between the horizon and the line of sight.



Always outside the triangle

### Example 1:

Two trees are 100m apart. From a point on midway between them, the angles of elevation to their tops are  $8^\circ$  and  $13^\circ$ . How much taller is one tree than the other?

①  $\tan 8^\circ = \frac{x}{50}$   
 $50 \tan 8^\circ = x$   
 $7.0 = x$

②  $\tan 13^\circ = \frac{y}{50}$   
 $50 \tan 13^\circ = y$   
 $11.5 = y$

③ Taller =  $y - x$   
 $= 11.5 - 7$   
 $= 4.5 \text{ m}$

### Example 2:

The 8<sup>th</sup> floor of an apartment building is 25m above the ground. From the 8<sup>th</sup> floor, the angle of elevation to the top of the other building is  $50^\circ$ . The angle of depression to the base of the taller building is  $34^\circ$ . Determine the height of the taller building.

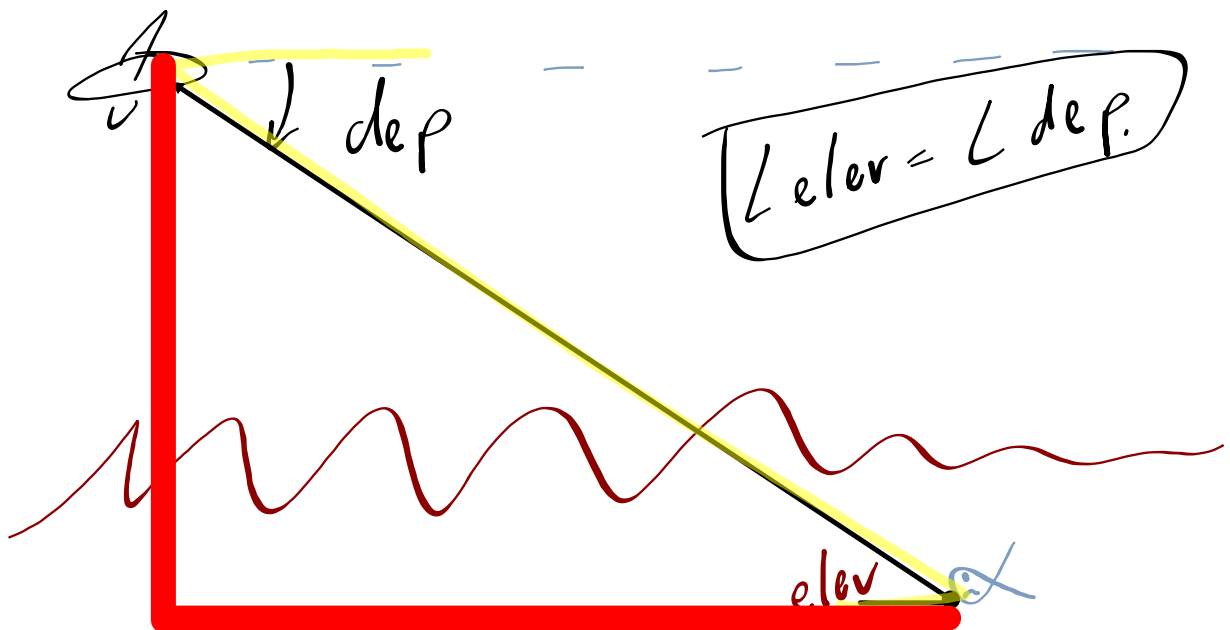
①  $\tan 34^\circ = \frac{25}{y}$   
 $y = \frac{25}{\tan 34^\circ}$   
 $y = 37.1$

②  $\tan 50^\circ = \frac{x}{37.1}$   
 $44.2 = x$

③  $h = 25 + x$   
 $h = 25 + 44.2$   
 $h = 69.2 \text{ m}$

$$\frac{y \tan 34}{\tan 34} = \frac{25 \cdot y}{y \tan 34}$$
$$y = \frac{25}{\tan 34}$$

# Mr. Hallihan's Artistic Talent...



Exercise

HOMEWORK

SOLVE 10.7

#10, #11ac, #12ac

Word  
Problems 10.8

#1, 3-6