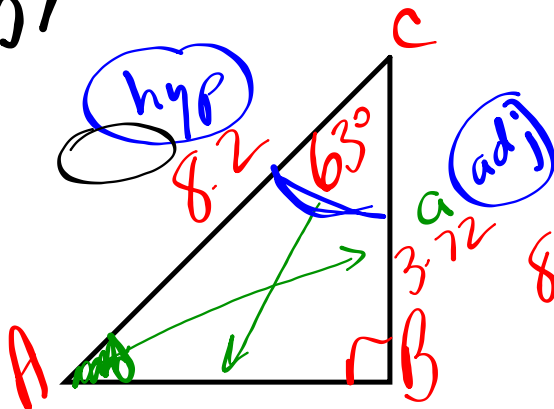


# HOMWORK...

Worksheet - Primary Trig Ratios.doc

39)



$\angle A = 27^\circ$   
SOH, CAH, TOA

$$8.2 \cos 63^\circ = \frac{a}{8.2}$$

$$8.2 \cos 63^\circ = a$$

$$3.72 = a$$

opp

$$\sin 63^\circ = \frac{c}{8.2}$$

$$8.2 \sin 63^\circ = c$$

$$7.31 = c$$

APPLICATIONS INVOLVING TRIGONOMETRIC RATIOS

**LESSON FOCUS**

Use a primary trigonometric ratio to solve a problem modelled by a right triangle.

**Make Connections**

Double-decker buses with wheelchair access ramps are used in Victoria, BC. When the bus is lowered, the extended ramp allows entry to the bus at about 4 in. above the sidewalk level. The ramp is about 3 ft. 3 in. long. How could you determine the angle of inclination of the ramp?



$$\cancel{\sin^{-1}} \sin \theta = \left( \frac{4}{39} \right)$$

$$\sin^{-1} \left( \frac{4}{39} \right)$$

$$\theta = 6^\circ$$

## ANGLES OF ELEVATION/DEPRESSION

Review:

SOH CAH TOA stands for:

These trig ratios will only work with right triangles.

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

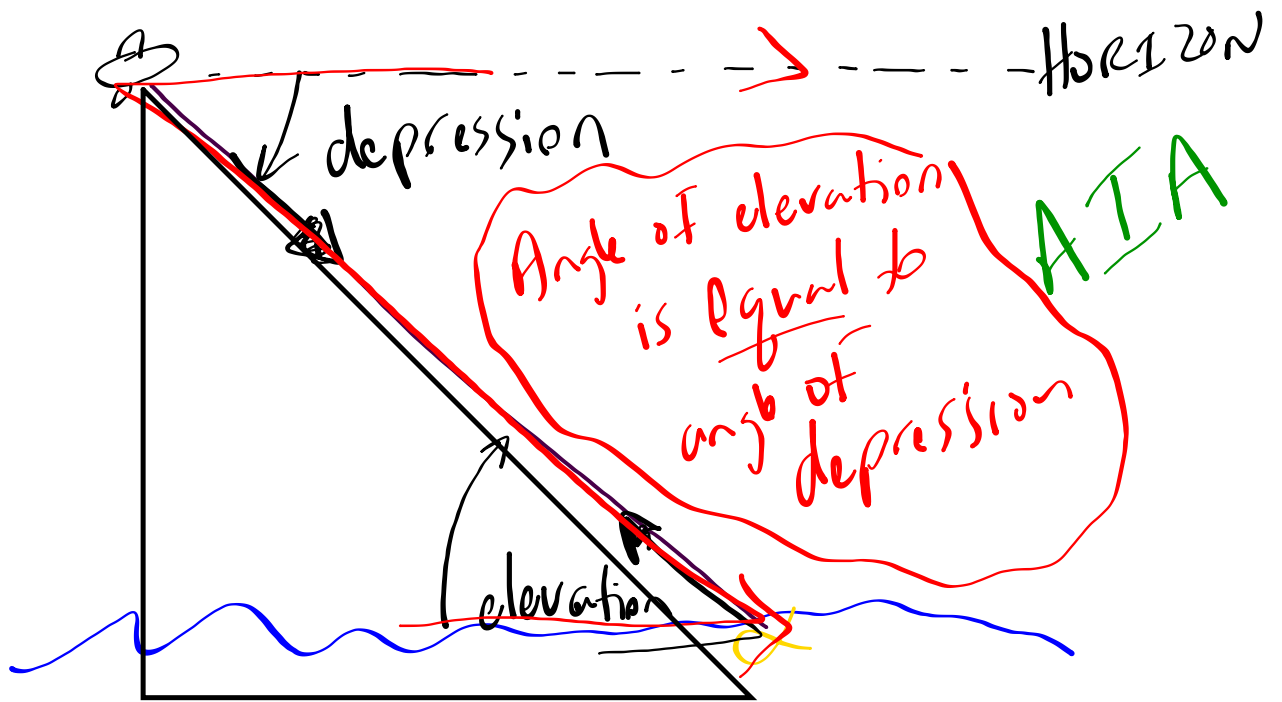
Angle of Depression is the angle between the horizon and the line of sight.

Always from the GROUND up

Always outside the triangle

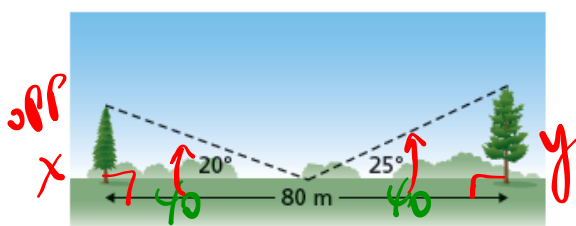
~~Also, note that the angle of elevation = angle of depression~~

Sometimes we don't have enough information to solve a triangle, by using just one triangle. However, if we have another associated right triangle, we may be able to solve one by using the provided data from the other.



**EXAMPLE #1:**

Two trees are 80 m apart. From a point halfway between the trees, the angles of elevation of the tops of the trees are measured. What is the height of each tree to the nearest metre?



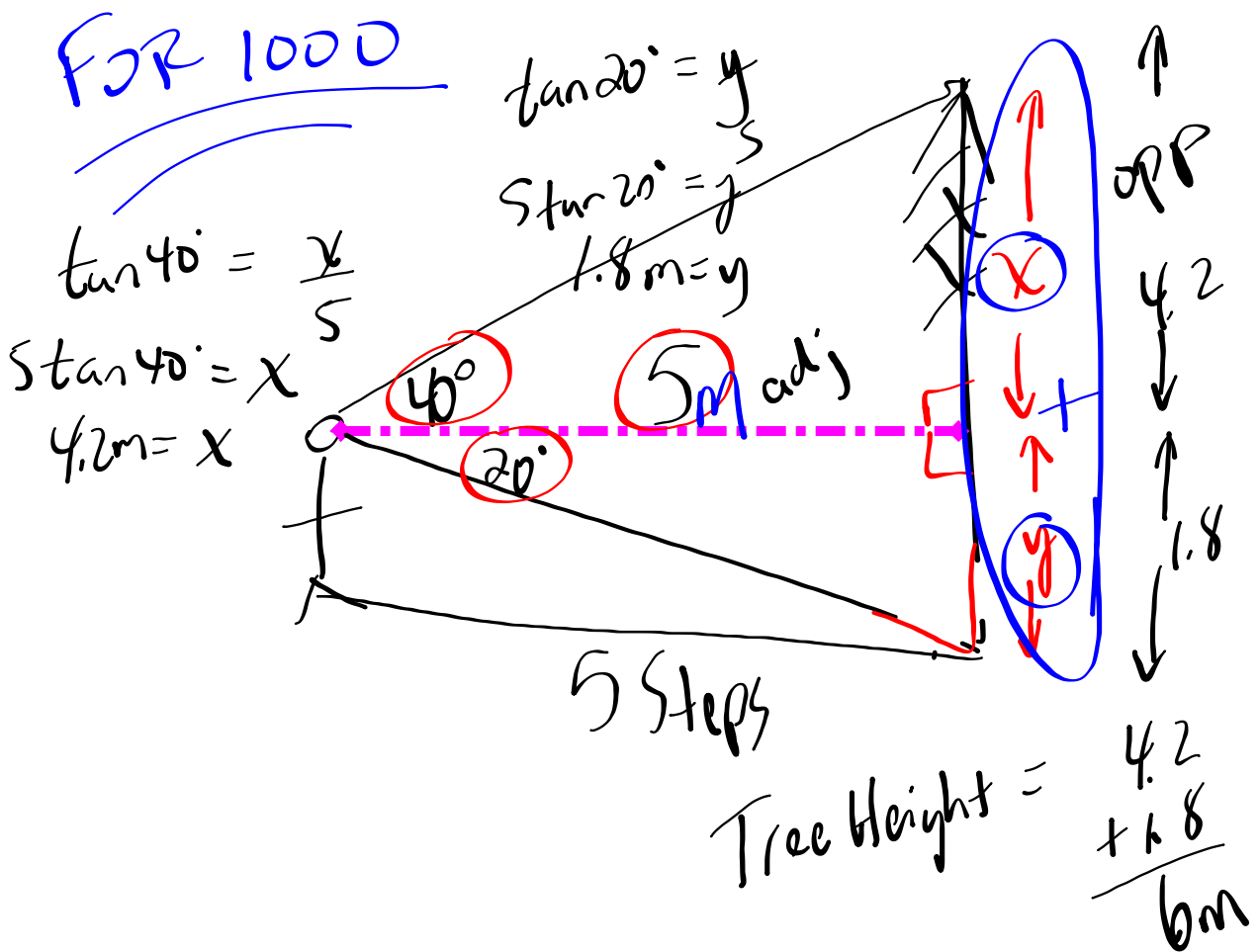
adj  
 $\tan 20^\circ = \frac{x}{40}$

$14.6\text{m} = x$

$\tan 25^\circ = \frac{y}{40}$

$18.7\text{m} = y$

2.7 Solving Problems Involving More than One Right Triangle



**EXAMPLE 2:** Using Sine or Cosine to Solve a Problem

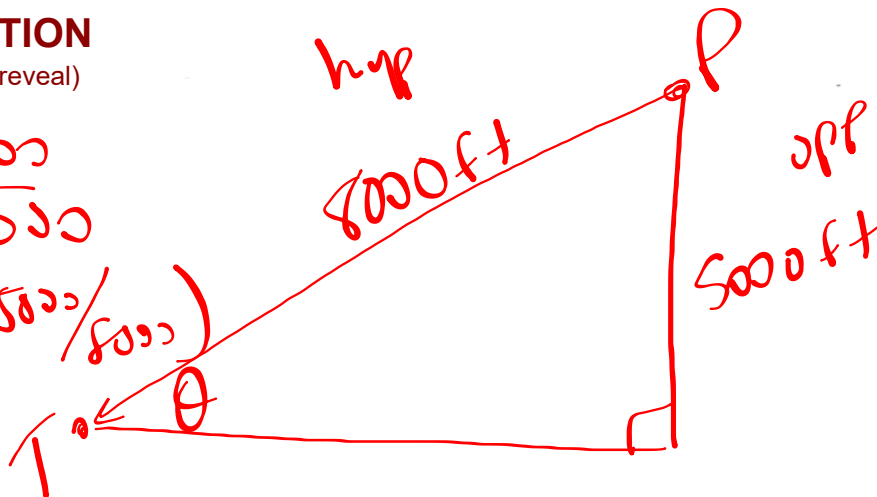
A water bomber is flying at an altitude of 5000 ft. The plane's radar shows that it is 8000 ft. from the target site. What is the angle of elevation of the plane measured from the target site, to the nearest degree?

 **SOLUTION**  
(erase to reveal)

$$\sin \theta = \frac{5000}{8000}$$


$$\theta = \sin^{-1}\left(\frac{5000}{8000}\right)$$

$$\theta = 39^\circ$$



CHECK YOUR UNDERSTANDING

# HOMEWORK...Pretest...Angles and Primary Trig

 [Worksheet - Solving and Applications.pdf](#)

Practice for quiz with #1 - 3

We will do word problems tomorrow



## Attachments

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Worksheet - Primary Trig Ratios.doc

Worksheet - Solving and Applications.pdf