Are there any Homework Questions you would like to see on the board?

pp. 261-262 # 2 - 9 8a

Today's Learning Goal(s):

By the end of the class, I will be able to:

a) Use the primary trig ratios to solve real world applications.
b) Correctly identify an angle of elevation and an angle of depression.

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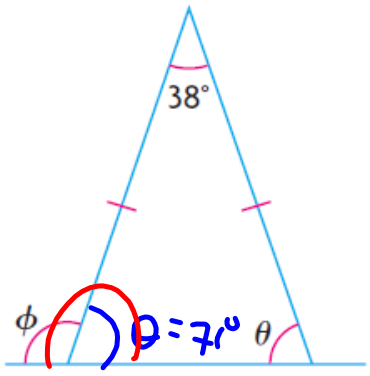
8. Determine each unknown angle to the nearest degree.

a)



$\theta + \theta + 38^\circ = 180^\circ$

$2\theta = 180^\circ - 38^\circ$

$2\theta = 142^\circ$

$\theta = \frac{142}{2}$

$\theta = 71^\circ$

$\phi + \theta = 180^\circ$

$\phi = 180^\circ - \theta$

$= 180^\circ - 71^\circ$

$= 109^\circ$

or $\phi = 38^\circ + \theta$ (Exterior Angle Theorem)

$= 38^\circ + 71^\circ$

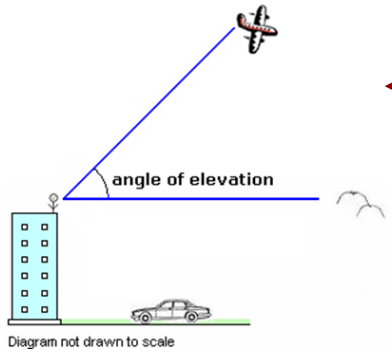
$= 109^\circ$

MCF 3MI

5.1 Applying the Primary Trigonometric Ratios

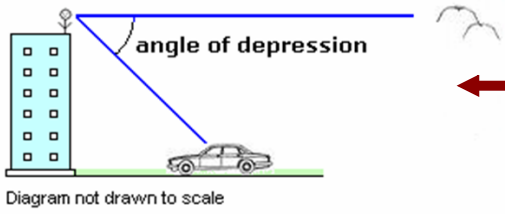
Date: Apr. 17/18

Recall: The **angle of elevation (inclination)** is the angle of view from a horizontal line segment **up** to the object being viewed.



Sketch this example onto your handout.

The **angle of depression** is the angle between the horizontal line segment and the line of sight ***down*** to an object.



Sketch this example onto your handout.

Ex. 1: You will see three types of trig equations. (Solve each to 1 decimal place) .

a) the variable on the top

$$\tan 55° = \frac{x}{8}$$

$x = 8 \times \tan 55°$

$x \doteq 11.42$

$x \doteq 11.4$ cm

b) the variable on the bottom

$$\sin 35° = \frac{4.3}{y}$$

$y = \dfrac{4.3}{\sin 35°}$

$y \doteq 7.49$

$y \doteq 7.5$ cm

c) the variable is the angle

$$\cos Z = \frac{2.9}{5.6}$$

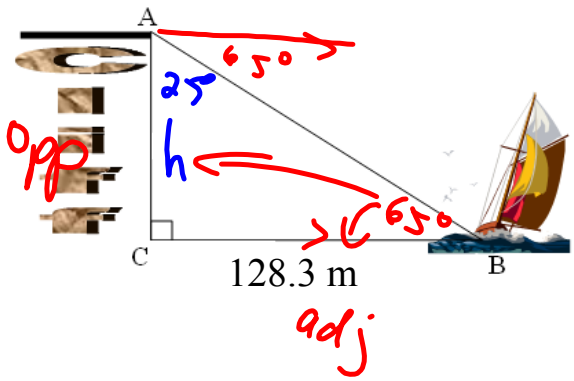
$Z = \cos^{-1}\left(\dfrac{2.9}{5.6}\right)$

$Z \doteq 58.81$

$Z \doteq 58.8°$

Ex. 2 A sailboat is 128.3 m from a cliff.
The angle of depression from the top of the cliff to the sailboat is 65˚.
Write the trigonometric ratio for the height of the cliff.

Let *h* represent the height of the cliff, in m.



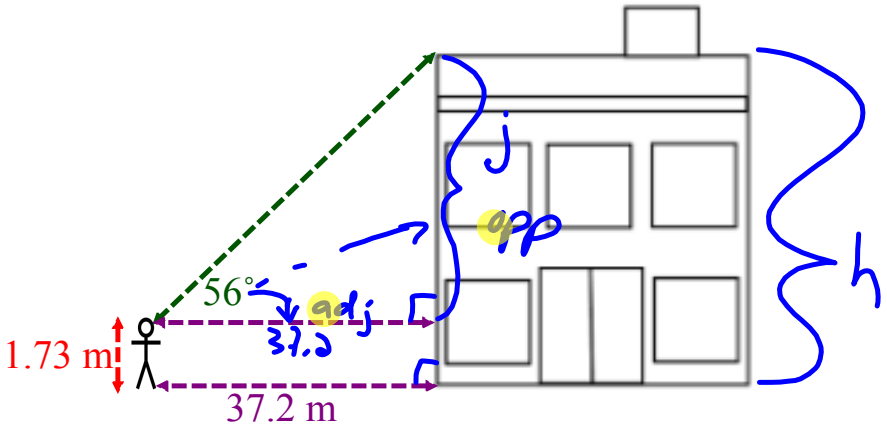
Solution: $\tan 65° = \dfrac{h}{128.3}$

NOT $\tan 65° = \dfrac{128.3}{h}$

Method:

Name the sides based on the indicated angle (sketch first if necessary).
Choose the correct Trig ratio using SOH, CAH, TOA (based on the given information from the diagram).
Write the Trig equation, then ISOLATE the variable.
Use a calculator to solve the equation.
Round your **final** answer, and give a concluding ( ) statement (including units).

Ex. 3 Use the diagram to estimate the height of the building, to 2 decimal places.



Let h **represent the height of the building, in m.**

$h = j + 1.73$ TOA: $\tan 56° = \frac{j}{37.2}$

$j = 37.2 \tan 56°$

$\doteq 55.151$

$\doteq 55.15$ m

$\therefore h = j + 1.73$

$\doteq 55.15 + 1.73$

$\doteq 56.88$

the building's height is 56.88 **m.**

56.88 m

Be fully prepared for tomorrow's Unit 4 Summative

READ p. 270 "In Summary" **AND**
pp. 271-273 # 3 – 5, 7 – 11, 14