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

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

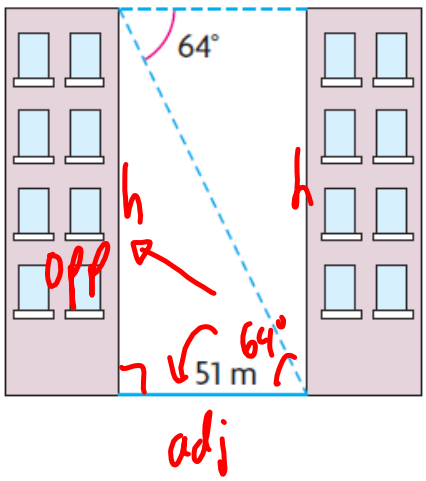
Today's Learning Goal(s):

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

a) Solve real-life problems by using combinations of primary trig ratios.

p. 273 # 14

14. Ainsley's and Caleb's apartment buildings are exactly the same height. Ainsley measures the distance between the buildings as 51 m and observes that the angle of depression from the roof of her building to the bottom of Caleb's is about 64°. How tall, to the nearest metre, is each building?



TOA: $51(\tan 64^\circ) = \left(\frac{h}{51}\right)51$

$51 \tan 64^\circ = h$

$h \doteq 104.5$

$\doteq 105$ m

Today's Learning Goal(s):

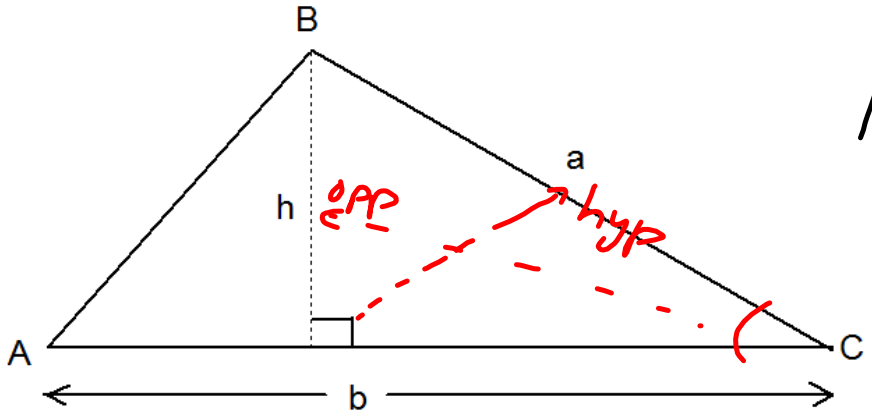
By the end of the class, I will be able to:

a) Solve real-life problems by using combinations of primary trig ratios.

MCF 3MI 5.2 Solving Trigonometry Problems I

Date: Apr. 19/18

Calculating the area of a triangle using Trigonometry.



$A = \frac{bh}{2}$

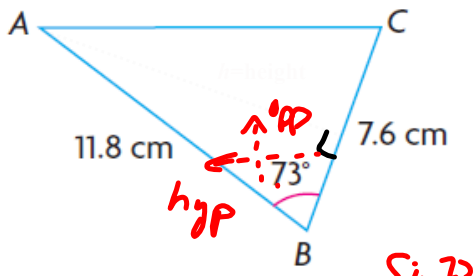
Recall: $A = \left(\frac{1}{2}\right) b \times h$ From the diagram above, $\sin C = \frac{h}{a}$

$\therefore a \sin C = h$

$A = \left(\frac{1}{2}\right) b \times (a \sin C)$

Ex. 1: (p. 280 # 1b)

Calculate the area of the triangle to the nearest tenth of a square centimetre.



$A = \frac{1}{2}bh$

$A_{\triangle ABC} = \frac{1}{2}(7.6)(11.8\sin 73^\circ)$

$\sin 73^\circ = \frac{h}{11.8}$

$h = 11.8\sin 73^\circ$

$\doteq$

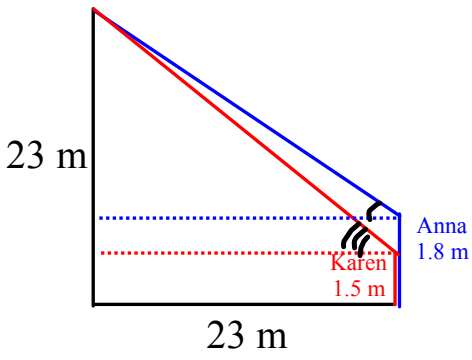
$\doteq 42.88$

$\doteq 42.9 \text{ cm}^2$

the area of the triangle is 42.9 cm^2 .

Ex. 2: (p. 280 # 3)

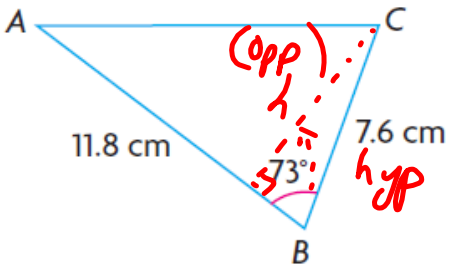
Karen and Anna are standing 23 m away from the base of a 23 m high house. Karen's eyes are 1.5 m above ground and Anna's eyes are 1.8 m above ground. Both girls observe the top of the house and measure its angle of elevation. Which girl will measure the greater angle of elevation? Justify your answer.



Karen's angle of elevation will be greater;
the lower your eyes, the higher the angle of elevation.

Ex. 1: (p. 280 # 1b) Alternate Solution

Calculate the area of the triangle to the nearest tenth of a square centimetre.



opp
h
hyp

$A = \frac{1}{2}bh$

$= \frac{1}{2}(11.8)(7.6\sin 73°)$

$\sin 73° = \frac{h}{7.6}$

$7.6\sin 73° = h$

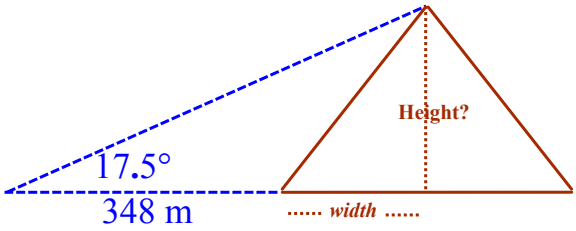
$\doteq 42.88$

$\doteq 42.9\ cm^2$

the area of the triangle is 42.9 cm^2 .

Ex. 3: (p. 281 # 5)

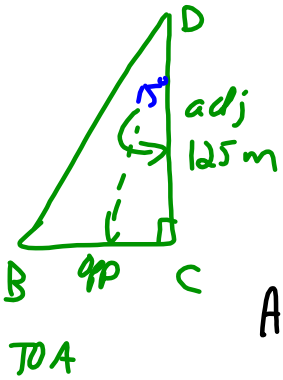
If the angle of elevation to the top of the pyramid of Cheops in Giza, Egypt, is 17.5°, measured 348 m from its base, can you calculate the height of the pyramid accurately? Explain your reasoning.



No, it cannot be done without knowing the length/width (sq.based pyramid) of the base of the pyramid.

Ex. 4: (p. 281 # 8)

A searchlight is mounted at the front of a helicopter flying 125 m above ground. The angle of depression of the light beam is 70°. An observer on the ground notices that the beam of light measures 5° How wide, to the nearest metre, is *d,* the spot on the ground?

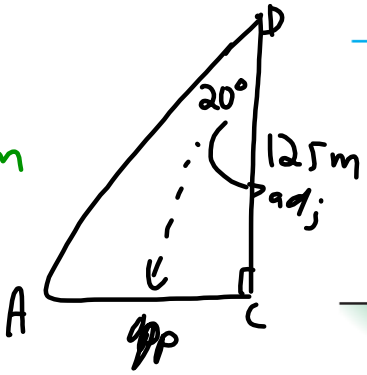


TOA

$\tan 15° = \frac{BC}{125}$

$BC = 125 \tan 15°$

$\doteq 33.49$

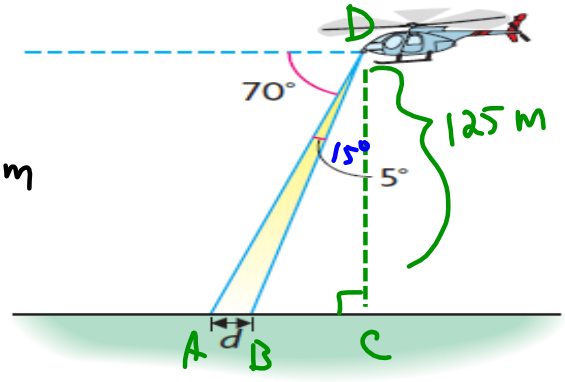


TOA:

$\tan 20° = \frac{AC}{125}$

$AC = 125 \tan 20°$

$\doteq 45.49$



$d = AC - BC$

$\doteq 45.49 - 33.49$

$= 12$

the spot on the ground is 12 m wide.

READ p. 280 "In Summary" **AND** pp. 280-282 # 1a, 2, 4, 6, 7, 9 – 11, 13