Today's Learning Goal(s):

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

a) Understand when and how to use:
   i) the pythagorean theorem (PT)
   ii) SOH CAH TOA
   iii) the sine **law**
   iv) the cosine **law**
b) correctly use all the formulae on the formula sheet
c) be ready for the Unit 1 Summative on Trigonometry!!

Handout Review lesson sheet

Correct Last Day's work: **p. 49 #6, 7**
p. 52 #1b, 2, 5, 8

Return & Correct SWYK 1.4
and any other unreturned items

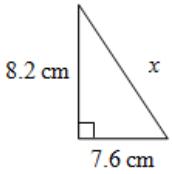
Today's work: p. 53 #12, 15
pp. 54-55 #3, 6, 9, 8* (* do last)
Study for Unit 1 Summative

MBF 3CI Unit 1 Review Date: Sept. 18/17

NOTE: Make sure you calculator is in DEGREE mode!! Round all final answers to the nearest tenth.
Diagrams are not drawn to scale. *(this means **one decimal place**)*

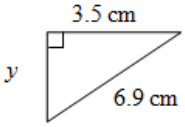
The Pythagorean Theorem (PT)
Ex. 1 Solve for the unknown side.

a)



$x^2 = 8.2^2 + 7.6^2$ ✓
$= 67.24 + 57.76$
$= 125$
$x = \sqrt{125}$ ✓
$\doteq 11.18$
$\doteq 11.2$ cm

b)

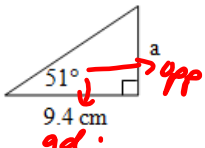


$y^2 + 3.5^2 = 6.9^2$ ✓
$y^2 = 6.9^2 - 3.5^2$
$= 47.61 - 12.25$
$= 35.36$
$y = \sqrt{35.36}$ ✓
$\doteq 5.94$
$\doteq 5.9$ cm

The Primary Trigonometric **Ratios** (SOH CAH TOA)
Ex. 2

a) Find the measure of side a.

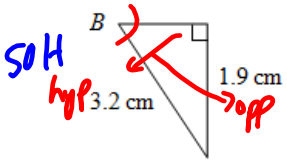
TOA



$\tan 51^\circ = \frac{a}{9.4}$
$9.4 \tan 51^\circ = a$
$a \doteq 11.60$
$\doteq 11.6$ cm

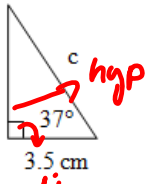
b) Find the measure of $\angle B$

SOH



$\sin B = \frac{1.9}{3.2}$
$B = \sin^{-1}\left(\frac{1.9}{3.2}\right)$
$\doteq 36.42$
$\doteq 36.4^\circ$

c) Find the measure of side c.

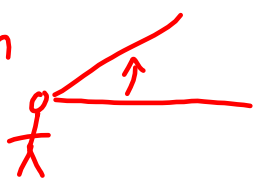


CAH

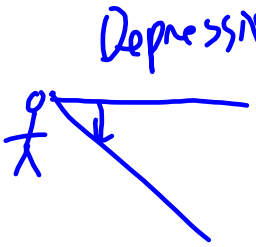
$\cos 37^\circ = \frac{3.5}{c}$
$c = \frac{3.5}{\cos 37^\circ}$
$\doteq 4.38$
$\doteq 4.4$ cm

Recall: angle of elevation versus angle of depression.
Recall: Solve the triangle means find the 3 unknowns.

Elevation



Depression

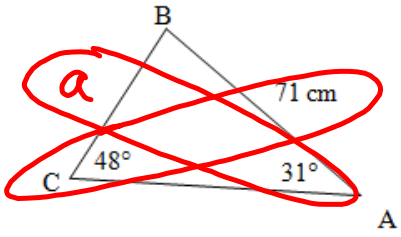


The Sine ***Law***

$$\frac{a}{\sin A}=\frac{b}{\sin B}=\frac{c}{\sin C} \qquad \frac{\sin A}{a}=\frac{\sin B}{b}=\frac{\sin C}{c}$$

Ex. 3

a) Find the measure of side a.



$$\frac{a}{\sin 31^\circ}=\frac{71}{\sin 48^\circ}$$

$$a\sin 48^\circ = 71\sin 31^\circ$$

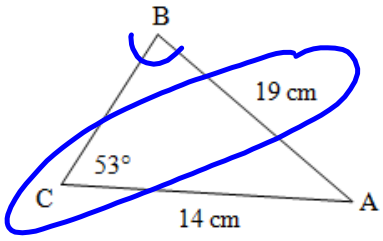
$$a=\frac{71\sin 31}{\sin 48^\circ}$$

$$a=\sin 31^\circ \times \frac{71}{\sin 48^\circ}$$

$$\doteq 49.20$$

$$\doteq 49.2\text{ cm}$$

b) Find the measure of $\angle B$



$$\frac{\sin B}{14}=\frac{\sin 53^\circ}{19}$$

$$\frac{19\sin B}{19}=\frac{14\sin 53^\circ}{19}$$

$$\sin B=\frac{14\sin 53^\circ}{19}$$

$$B=\sin^{-1}\left(\frac{14\sin 53^\circ}{19}\right)$$

$$\doteq 36.04$$

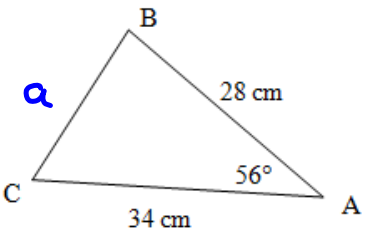
$$\doteq 36.0^\circ$$

The Cosine ***Law***

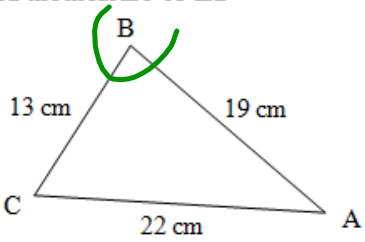
$$a^2 = b^2 + c^2 - 2bc\cos A \qquad \cos A = \frac{b^2 + c^2 - a^2}{2bc} \qquad \cos B = \frac{a^2 + c^2 - b^2}{2ac}$$

Ex. 4

a) Find the measure of side a.



b) Find the measure of $\angle B$



$a^2 \doteq 34^2 + 28^2 - 2(34)(28)\cos 56°$

$\doteq 875.29$

$a \doteq \sqrt{875.29}$

$\doteq 29.58$

$\doteq 29.6$ cm

$\cos B = \dfrac{13^2 + 19^2 - 22^2}{2(13)(19)}$

$B = \cos^{-1}\left(\dfrac{46}{494}\right)$

$\doteq 84.65$

$\doteq 84.7°$