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

pp. 299-301 # 2 – 5, 7, 9

Today's Learning Goal(s):

Return Unit 4 Summative?

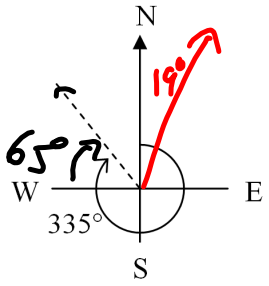
By the end of the class, I will be able to:

a) Use the sine law cosine law to solve word problems.

MCF 3MI 5.5 Solving Trigonometry Problems II

Date: Apr. 24/18

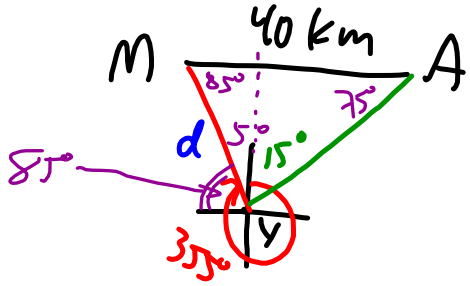
Bearing – A bearing is a clockwise angle from magnetic north.
For example, the dashed line shows a bearing of 335°.

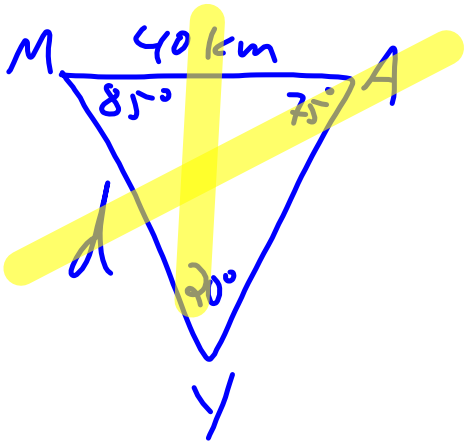


bearing 335°
or [W65°N]

bearing 019°

Ex.1: Mathville is 40 km due west of Awesometown.
From where you are, Mathville is at a bearing of 355°,
and Awesometown is a bearing of 015°.
How far are you from Mathville?





$\angle A = 180° - 85° - 20°$

$= 75°$

Sine Law

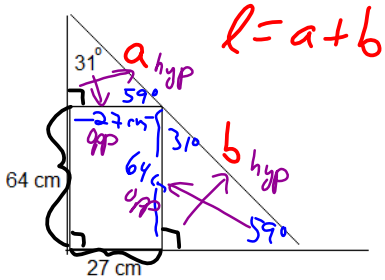
$$\frac{d}{\sin 75°} = \frac{40}{\sin 20°}$$

$$d = \sin 75° \times \frac{40}{\sin 20°}$$

$\doteq 112.96$

$\doteq 113.0$ km

Ex. 2: A ladder leaning against a wall makes an angle of 31° with the wall. The ladder touches a box that is flush against the wall and the ground. The box has a height of 64 cm and a width of 27 cm. How long, to the nearest centimetre, is the ladder?



$\ell = a + b$

a	b
SoH	SoH:
$\sin 31° = \frac{27}{a}$	$\sin 59° = \frac{64}{b}$
$a(\sin 31°) = a\left(\frac{27}{a}\right)$	$b = \frac{64}{\sin 59°}$
$a \sin 31° = 27$	$\doteq 74.66$ cm
$a = \frac{27}{\sin 31°}$	
$\doteq 52.42$ cm	

$\therefore \ell = a + b$

$= 52.42 + 74.66$

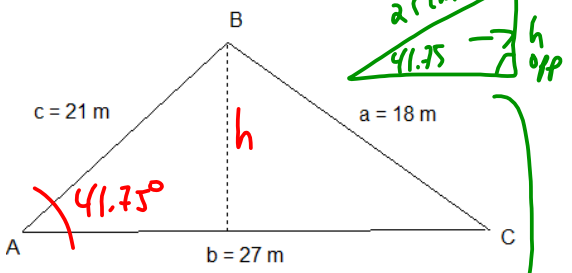
$= 127.08$ cm

$\therefore$ the ladder is 127 cm in length

ANS:

Ex. 3: Jim has a triangular backyard with side lengths of 27 m, 21 m and 18 m. If 1 bag of fertilizer covers 400 m^2, does he have enough fertilizer?

HINT: Find ∠ A first !!!! and then find "h".



$A_\Delta = \frac{bh}{2}$

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

$\doteq \frac{1}{2}(27)(13.98)$

$\doteq 188.73$

$\cos A = \frac{27^2 + 21^2 - 18^2}{2(27)(21)}$

$= \frac{846}{1134}$

$A = \cos^{-1}\left(\frac{846}{1134}\right)$

$\doteq 41.75$

SoH

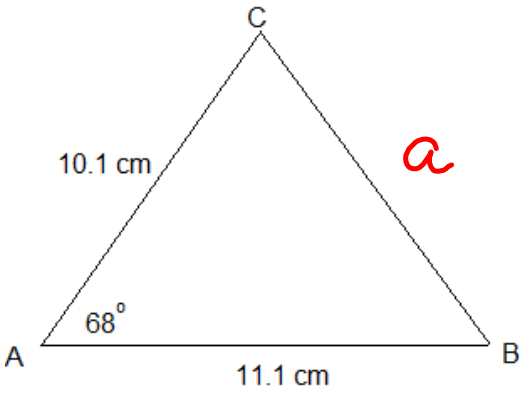
$\sin 41.75° = \frac{h}{21}$

$h \doteq 21 \sin 41.75°$

$\doteq 13.98$

ANS: $\therefore$ Jim has enough fertilizer to cover the lawn twice, with 22.44 m^2 left over.

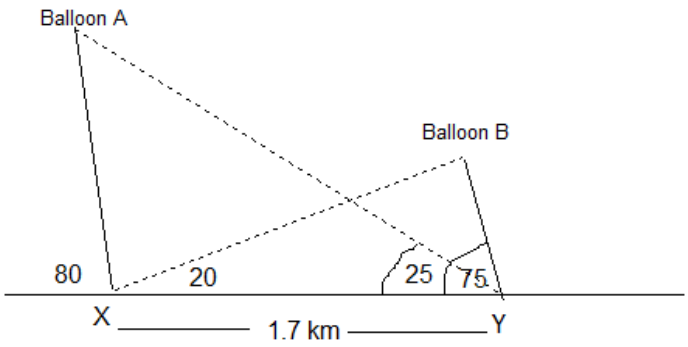
Ex. 4: Solve Δ ABC, given: ∠ A=68°, b=10.1 cm, c=11.1 cm



Cosine Law

$a^2 = 11.1^2 + 10.1^2 - 2(11.1)(10.1)\cos 68°$

Ex. 5: Two observers standing at points X and Y are 1.7 km apart.
Each person measures angles of elevation to two balloons, A and B, flying overhead as shown.
(Round your answers to the nearest tenth of a km)



a) How far is balloon A from point X? From point Y?

∴balloon A is ∴balloon A

b) How far is balloon B from point X? From point Y?

∴balloon B ∴balloon B is

c) How far apart are balloons A and B?

∴

Today's Homework:

Be prepared for SWYK 5.2 tomorrow on the Sine LAW and the Cosine LAW.

READ p. 308 **AND**
pp. 309-311 # 1 – 10, 12, 13 **AND**
READ p. 313

(Work ahead on the review)