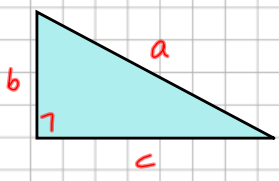


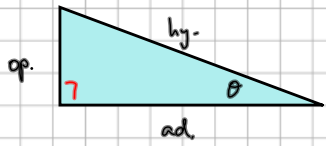
# Trigonometry Revision

**Pythagoras**



$$a^2 = b^2 + c^2$$

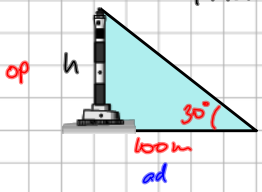
**Trig. ratios**



op.  $\theta$

SoH  
CAH  
TOA

Find h?



op. h

100m adj.  $30^\circ$

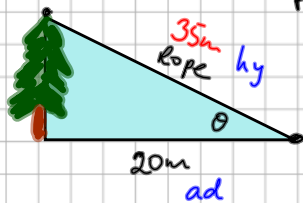
To A

$$\tan 30^\circ = h / 100$$

$$h = 100 \tan 30^\circ$$

$$h \approx 58 \text{ m}$$

Find Angle?  
(use inverse)



35m hyp. rope

20m adj.

$\theta$

CAH

Find  $\theta$ ?

$$\cos \theta = \frac{20}{35}$$

$$\theta = \cos^{-1} \left( \frac{20}{35} \right) \approx 55^\circ$$

Angle measure

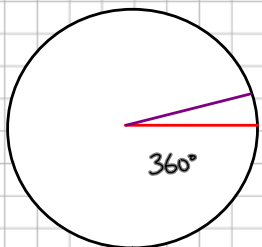
D'm's'

1 degree = 60 mins  
1 min = 60 sec.

55° 35'  $\approx$  55.58°  
DMS  $\rightarrow$  DECIMAL

40.5° = 40° 30'

0.999



non-right angled triangles

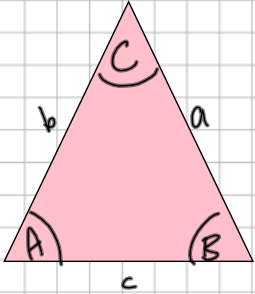
Use:

① Area  $A = \frac{1}{2} ab \sin C$

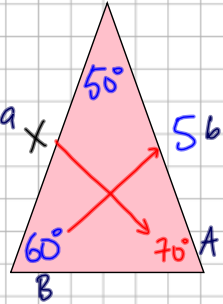
② Sine Rule  $\frac{\sin A}{a} = \frac{\sin B}{b}$

or  $\frac{a}{\sin A} = \frac{b}{\sin B}$

③ Cosine Rule  $a^2 = b^2 + c^2 - 2bc \cos A$



Sine Rule:



$\frac{a}{\sin A} = \frac{b}{\sin B}$

$\frac{x}{\sin 70} = \frac{5}{\sin 60}$

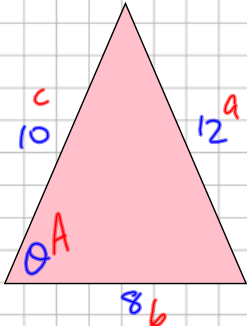
$x = \frac{5 \sin 70}{\sin 60}$

$x = 5.4$

Cosine Rule

$a^2 = b^2 + c^2 - 2bc \cos A$

Find Angle?  
(use inverse)



$(12)^2 = (8)^2 + (10)^2 - 2(8)(10) \cos \theta$

$144 = 64 + 100 - 160 \cos \theta$

$144 = 164 - 160 \cos \theta$

$-20 = -160 \cos \theta$

$\frac{20}{160} = \cos \theta$

$\theta = \cos^{-1}\left(\frac{1}{8}\right) = 82.8^\circ$