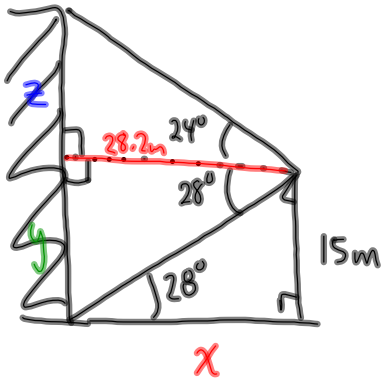
Trig Practice Booklet

2.



a) $\tan\theta = \frac{opp}{adj}$

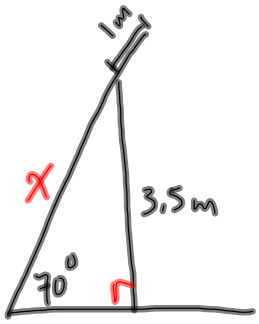
$x \tan 28° = \frac{15m}{x} \cdot x$

$x \tan 28° = 15m$

$x = \frac{15m}{\tan 28°}$

$x = 28.2\,m$

3.



$\sin\theta = \frac{opp}{hyp}$

$\sin 70° = \frac{3.5m}{x}$

$x \sin 70° = 3.5m$

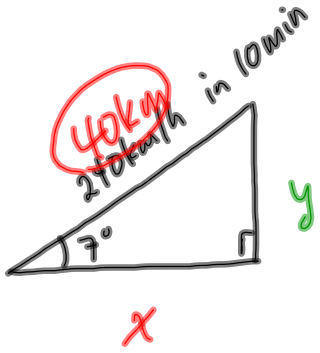
$x = \frac{3.5m}{\sin 70°}$

$\boxed{x = 3.7m}$

$l = 3.7m + 1.0m$

$l = 4.7m$

6.



$\frac{240\,km}{60\,min} = \frac{x\,km}{10\,min}$

$60x = 2400$

$x = \frac{2400}{60}$

$x = 40\,km$

a) $\sin\theta = \frac{opp}{hyp}$

$\sin 7° = \frac{y}{40\,km}$

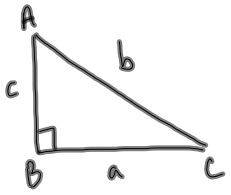
$y = (40km)\sin 7°$

$\boxed{y = 4.9\,km}$

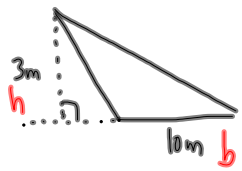
Area of a Triangle

Recall $A = \frac{b \times h}{2}$

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



Example



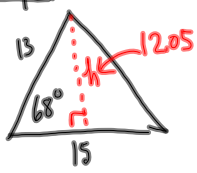
Note that the base and height need to be ⊥

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

$\text{Area} = \frac{1}{2}(10m)(3m)$

$\text{Area} = 15m^2$

Example



$\sin\theta = \frac{opp}{hyp}$

$\sin 68° = \frac{h}{13}$

$h = 13\sin 68°$

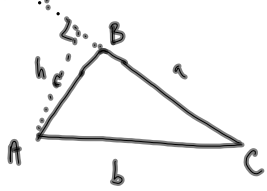
$h = 12.05$

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

$A = \frac{1}{2}(15)(12.05)$

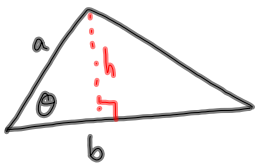
$A = 90.4$ sq. units

So if we have $\triangle ABC$:



we can draw 3 different heights.

It doesn't really matter as long as it is ⊥ to the base you use



$\sin\theta = \frac{h}{a}$

$h = a\sin\theta$

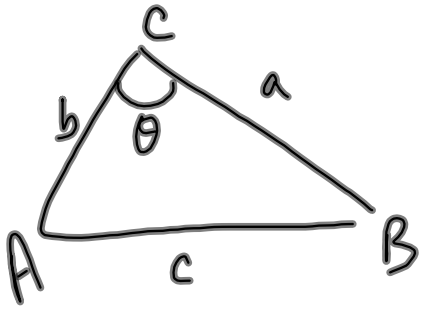
$\text{Area} = \frac{1}{2} \text{ base} \times \text{height}$

$\text{Area} = \frac{1}{2}ba\sin\theta$

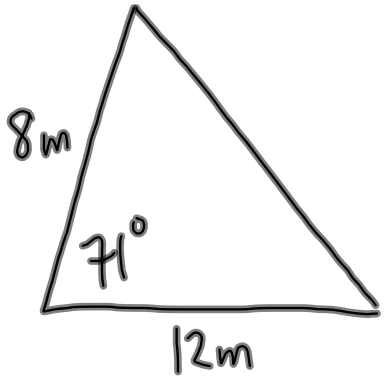
$A = \frac{1}{2}ab\sin\theta$

This can be used to find the area of ANY triangle where the sides a and b form θ.

Area = $\frac{1}{2}ab\sin\theta$ sometimes is written as $\frac{1}{2}ab\sin C$



Example

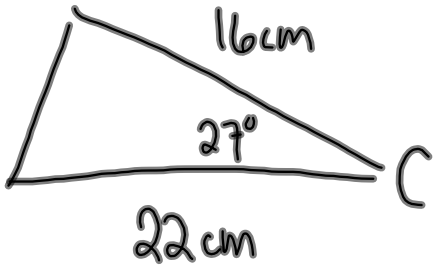


$A = \frac{1}{2}ab\sin C$

$A = \frac{1}{2}(8m)(12m)\sin 71^\circ$

$A = 45.4\ m^2$

Example



$A = \frac{1}{2}ab\sin C$

$A = \frac{1}{2}(16cm)(22cm)\sin 27^\circ$

$A = 79.9\ cm^2$