Finding the Angle Size

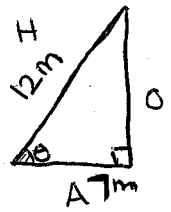
* we can calculate the angle size if we know two of the side lengths in a right angle triangle.

1. Label the triangle, H, O, A
2. Chose the trig ratio (SOH CAH TOA)
3. Write the formula, substitute the numbers, and solve for the angle.

Example: Find angle θ =

~~SOH~~ CAH ~~TOA~~

1.



$\cos\theta = \frac{A}{H}$

$\cos\theta = 7/12$

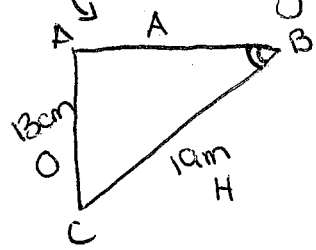
$\cos\theta = 0.5833$

$\theta = \cos^{-1}(0.5833)$

$\theta = 54°$

(Find angle B:)

2.



SOH ~~CAH~~ ~~TOA~~

$\sin\theta = \frac{O}{H}$

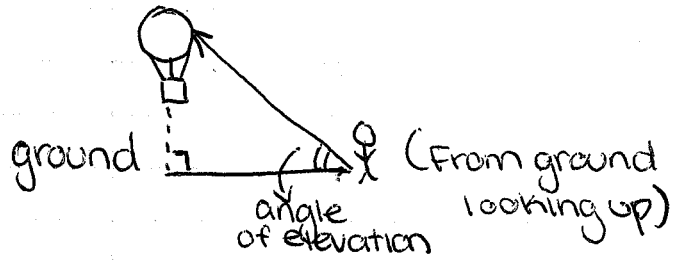
$\sin B = 13/19$

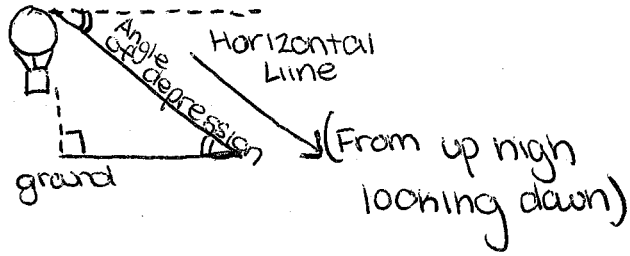
$\sin B = 0.6842$

$B = \sin^{-1}(0.6842)$

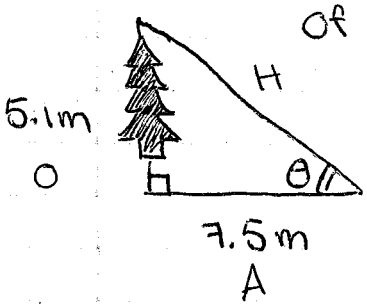
$B = 43°$

Example: Angle of Elevation ~~ Angle of depression





Example: A 5.1m tall tree casts a 7.5m long shadow. Calculate the angle of elevation <u>to the nearest tenth</u> of a degree.



$\tan\theta = \frac{O}{A}$

$\tan\theta = 5.1/7.5$

$\tan\theta = 0.68$

$\theta = \tan^{-1}(0.68)$

$\theta = 34.2°$