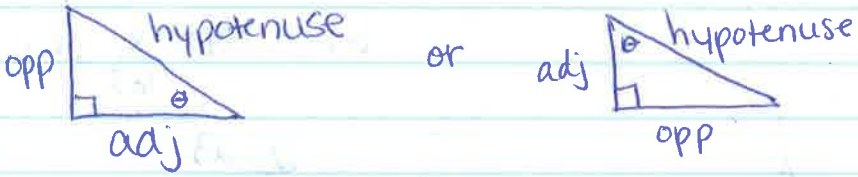
# Trig Intro notes

Recall Pythagorean Theorem: $a^2+b^2=c^2$
- was for right triangles
- solved for a side given the other two sides

Basic Trigonometric Functions:

~~sine~~ ~~cosine~~ ~~tangent~~

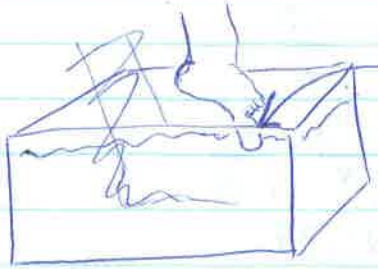
- all trig functions are solving right triangles, but now we may be given (or solve for) an angle.
  - we use the symbol $\theta$ (theta) for angles




- opposite is "across from" our $\theta$ angle
- adjacent is "next to" our $\theta$ angle
- hypotenuse is always across from the right angle

- $\sin(\theta) = \frac{opp}{hyp}$
- $\cos(\theta) = \frac{adj}{hyp}$
- $\tan(\theta) = \frac{opp}{adj}$

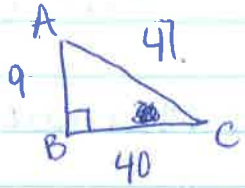
SOH - CAH - TOA



soak a toa!

- Setting up trig ratios

Ex: 1/

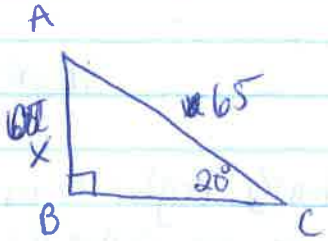



$\sin C = \frac{9}{41}$ $\sin A = \frac{40}{41}$

$\cos C = \frac{40}{41}$ $\cos A = \frac{9}{41}$

$\tan C = \frac{9}{40}$ $\tan A = \frac{40}{9}$

Ex: 2/




Find AB. Which would you use?

$\sin 20 = \frac{x}{65}$

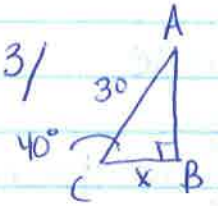
* make sure calc is in degree mode *

$\sin 20 = .34$

$65 \cdot .34 = \frac{x}{65} \cdot 65$

$22.23 = x$

Ex: 3/

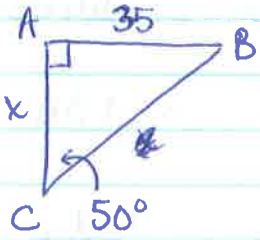



Find BC. $\cos\theta = \frac{adj}{hyp}$

$\cos(40) = \frac{x}{30}$

$.766 = \frac{x}{30}$ $x = 22.98$

Ex: 4/




Find AC. $\tan\theta = \frac{opp}{adj}$

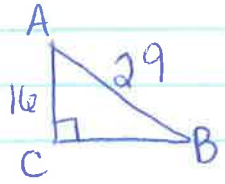
$\tan(50) = \frac{35}{x}$

$x \cdot \frac{1.19}{1} = \frac{35}{x} \cdot \frac{x}{1.19}$

$x = 29.37$

## – Undo-ing...

Ex: 5/




Find $\angle A$.

$\cos = \frac{adj}{hyp}$

$\cos\theta = \frac{16}{29}$

in CALC $\cos^{-1}(16/29)$ $\theta \approx 56.5°$

Find $\angle B$.

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

$\sin\theta = \frac{16}{29}$

$\sin^{-1}(16/29) = \theta$

$\theta \approx 33.49°$

* undo-ing sin, cos, or tan with inverse functions

HW: mix n' match

Trig Ratios #

Inverse Trig #