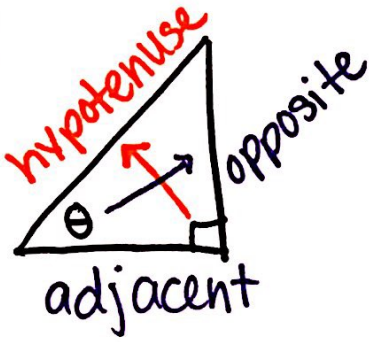
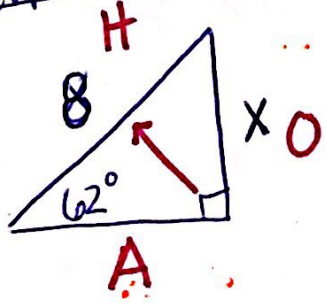
Right Triangle Trig



$S\frac{O}{H}\ C\frac{A}{H}\ T\frac{O}{A}$

Review

#1



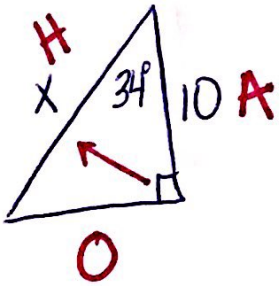
$S\frac{O}{H}\ C\frac{A}{H}\ T\frac{O}{A}$

$\frac{\sin 62^\circ}{1} = \frac{x}{8}$ ← cross multiply ☺

$(8)\sin 62^\circ = X$

$X = 7.06$

#2



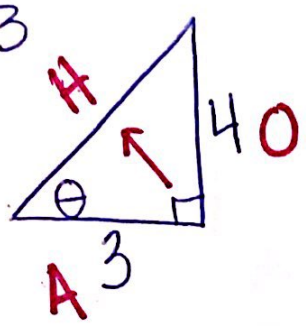
$S\frac{O}{H}\ C\frac{A}{H}\ T\frac{O}{A}$

$\frac{\cos 34}{1} = \frac{10}{X}$

$\frac{(X)\cos 34}{\cos 34} = \frac{10}{\cos 34}$

$X = 12.06$

#3



~~SOH CAH~~ TOA

$\tan\theta = \frac{4}{3}$

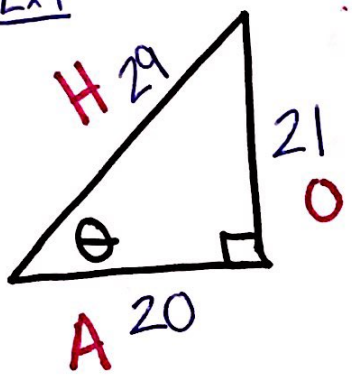
2nd tan

$\theta = \tan^{-1}(4/3)$

$\theta = 53.13°$

★ Use inverse when solving for an angle ★

Ex1



Given $\tan\theta = \frac{21}{20}$, Find all other trig ratios.

$\sin\theta = \frac{21}{29}$

$\cos\theta = \frac{20}{29}$

$\tan\theta = \frac{21}{20}$

$\csc\theta = \frac{29}{21}$ (cosecant)

$\sec\theta = \frac{29}{20}$ (secant)

$\cot\theta = \frac{20}{21}$ (cotangent)

Reciprocals ☺

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

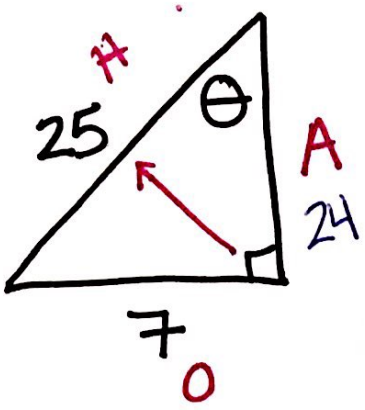
$(20)^2 + (21)^2 = (H)^2$

$400 + 441 = H^2$

$\sqrt{841} = \sqrt{H^2}$

$H = 29$

Ex 2 Given $\sin\theta = \frac{7}{25}$, Find all 6 trig ratios.



$\sin\theta = \frac{7}{25} \rightarrow \csc\theta = \frac{25}{7}$

$\cos\theta = \frac{24}{25} \rightarrow \sec\theta = \frac{25}{24}$

$\tan\theta = \frac{7}{24} \rightarrow \cot\theta = \frac{24}{7}$

① Draw and label triangle ② Use Pythagorean Th.

$(7)^2 + x^2 = (25)^2$

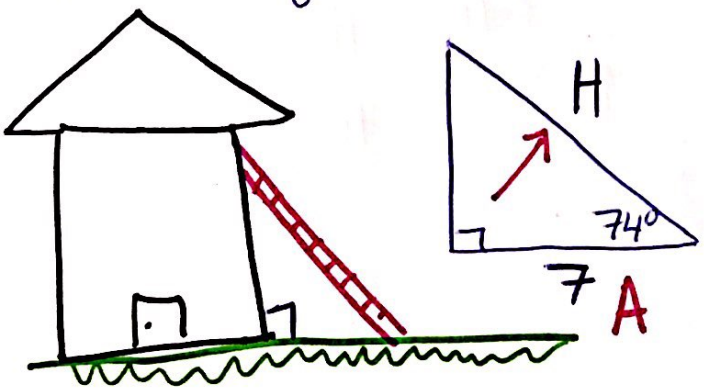
$49 + x^2 = 625$

$-49 \quad -49$

$\sqrt{x^2} = \sqrt{576}$

$x = 24$

Ex 3 A ladder leaning on a house at a 74° angle. The foot of the ladder to the house is 7 feet. How long is the ladder?



$\frac{\cos 74}{1} = \frac{7}{H}$

$\frac{H(\cos 74)}{\cos 74} = \frac{7}{\cos 74}$

$H \approx 25$ feet