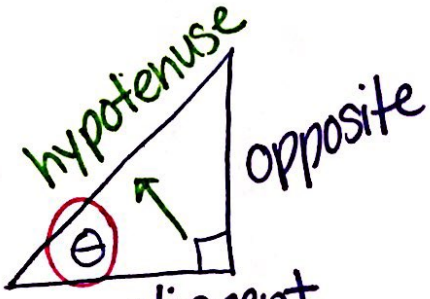
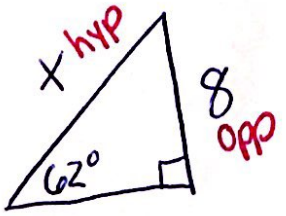
Right Triangle Trig



reference angle



SOH CAH TOA

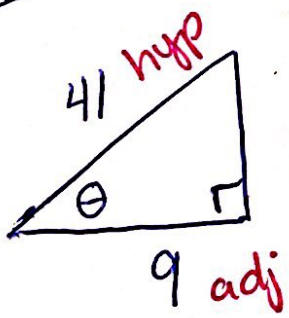
$\frac{\sin 62}{1} = \frac{8}{x}$

$\frac{x \cdot \sin 62}{\sin 62} = \frac{8}{\sin 62°}$

$x = 9.06$

★ Check the mode of the calculator ★

Ex 2



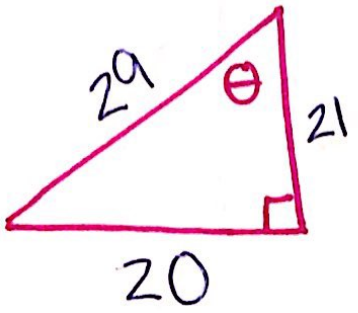
$\cos\theta = \frac{9}{41}$

$\theta = \cos^{-1}(9/41)$

$\theta = 77.32°$

★ Because I'm solving for an angle, use inverse!

Ex 3 Given $\sin\theta = \frac{20}{29}$, Find all other trig ratios



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

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

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

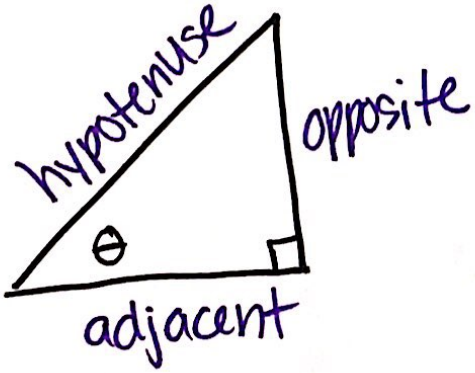
$\sec\theta = \frac{29}{21}$

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

① Draw & label Δ ② Pythagorean Th. to get missing side.

6 Trigonometric Ratios

Reciprocals! ☺

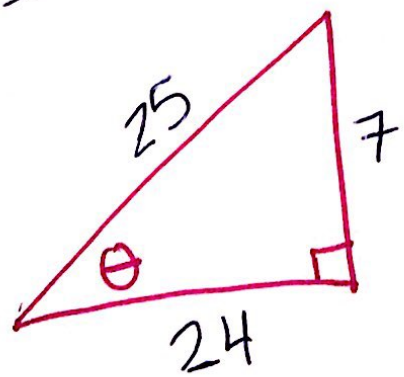


$\sin\theta = \frac{opp}{hyp}$ $\quad \csc\theta = \frac{hyp}{opp}$ (cosecant)

$\cos\theta = \frac{adj}{hyp}$ $\quad \sec\theta = \frac{hyp}{adj}$ (secant)

$\tan\theta = \frac{opp}{adj}$ $\quad \cot\theta = \frac{adj}{opp}$ (cotangent)

Ex 4 Given $\tan\theta = \frac{7}{24}$, Find all 6 trig ratios



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

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

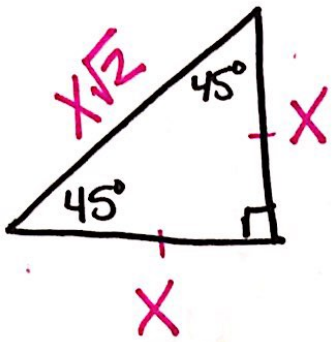
$\tan\theta = \frac{7}{24}$

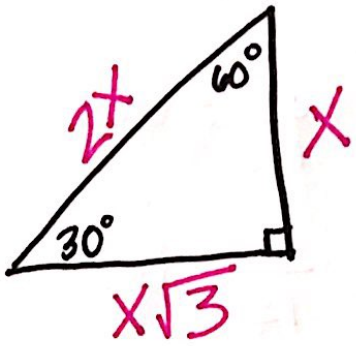
$\csc\theta = \frac{25}{7}$

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

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

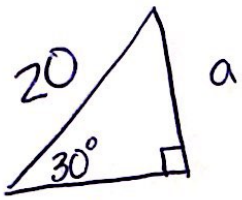
Special Right Triangles





Review

① Find a and b

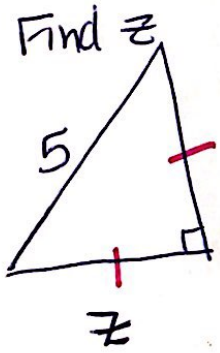


$\frac{20}{2} = \frac{2x}{2}$

$x = 10$

$a = 10$ $b = 10\sqrt{3}$

② Find z



$\frac{5}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$

$x = \frac{5}{\sqrt{2}}\frac{\sqrt{2}}{\sqrt{2}} = \frac{5\sqrt{2}}{2}$