Trigonometry Review

Essential Question: How do I calculate the six trig ratios of an angle in a right triangle?

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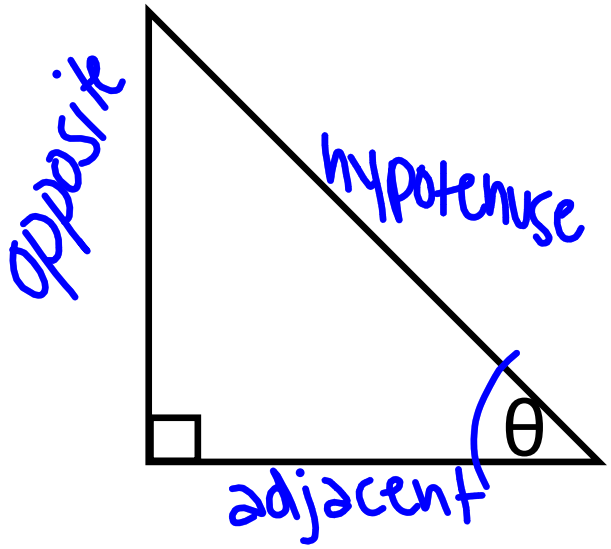

SOH CAH TOA

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

Reciprocal trig identities

$\csc\theta = \frac{hyp}{opp}$ "cosecant"

$\sec\theta = \frac{hyp}{adj}$ "secant"

$\cot\theta = \frac{adj}{opp}$ "cotangent"

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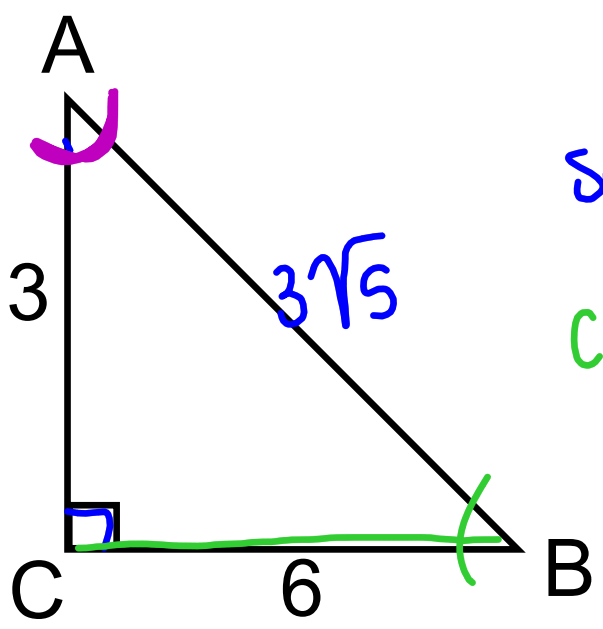
ex.1



$3^2+6^2 = hyp^2$

$x = \sqrt{45} = 3\sqrt{5}$

$\sqrt{9}\ \sqrt{5}$

SOH

$\sin A = \frac{6}{3\sqrt{5}} = \frac{2}{\sqrt{5}}$ $\sin B = \frac{1}{\sqrt{5}}$

CAH

$\cos B = \frac{6}{3\sqrt{5}} = \frac{2}{\sqrt{5}}$ $\csc B = \sqrt{5}$

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

tan TOA

$\frac{O}{A} = \frac{6}{3} = \frac{2}{1}$

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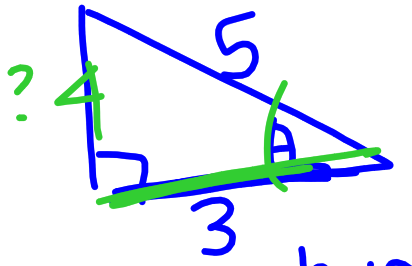
ex 2. If $\sec\theta = 5/3$, what is $\cot\theta$?

Draw Δ!!



$\sec\theta = \frac{hyp}{adj}$

$3^2 + x^2 = 5^2$

$\cot\theta = \frac{adj}{opp} = \frac{3}{4}$

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Using the Calculator...

Use a calculator in degree mode to find the indicated function value to three decimals.

MODE

3. $\sin 48^\circ = .743$

4. $\csc 7.5^\circ = \frac{1}{\sin(7.5)} = 7.661$

5. ~~$\cot 192^\circ$~~

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Using the Calculator...

Find the degree measure of acute angle θ correct to 3 decimal places.

6. $\sin\theta = .873$

$\theta = \sin^{-1}(.873)$

$= \arcsin(.873)$

2nd

```
sin(48)
        .7431448255
1/sin(7.5)
        7.661297576
sin⁻¹(.873
        60.8091528
```

$60.809°$

$\sqrt{x^2} = \sqrt{32}$ inverse operation

7. $\sec\theta = 1.689$

$\theta = \text{arcsec}(1.689) \Rightarrow \theta = \cos^{-1}\left(\frac{1}{1.689}\right) = 53.696°$

inverse → inside