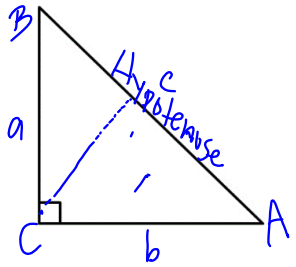
8.1 Right Triangle Trig (G.SRT.6)

Pythagorean Theorem:

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

c hypotenuse
- longest side
- opposite the 90°



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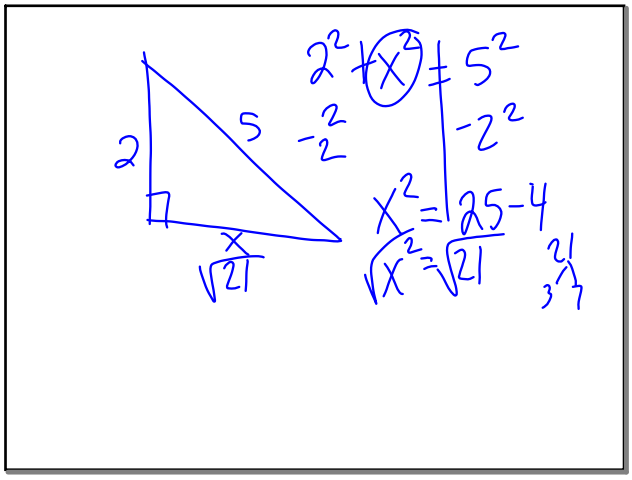

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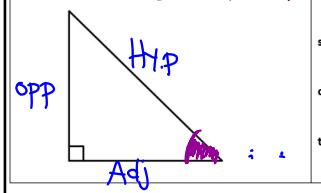
Trigonometry –

SOH-CAH-TOA

Trig Ratios: SOHCAHTOA



sine	opp/hyp	cosecant	reciprocal hyp/opp
cosine	adj/hyp	secant	hyp/adj
tangent	opp/adj	cotangent	adj/opp

Sin csc
cos sec
tan cot

mode: degree

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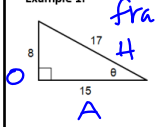
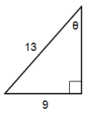
Identify the six trig ratios for the triangles in the examples below:

Example 1: fraction



Example 2:



$\sin\theta=\frac{8}{17}$ $\csc\theta=\frac{17}{8}$

$\cos\theta=\frac{15}{17}$ $\sec\theta=\frac{17}{15}$

$\tan\theta=\frac{8}{15}$ $\cot\theta=\frac{15}{8}$

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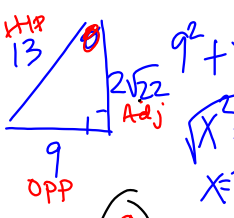

$9^2+x^2=13^2$

$\sqrt{x^2}=\sqrt{88}$

$x=2\sqrt{22}$

88
4 22
2 2 2 11

$\sin\theta=\frac{9}{13}$ $\csc\theta=\frac{13}{9}$

$\cos\theta=\frac{2\sqrt{22}}{13}$ $\sec=\frac{13}{2\sqrt{22}}\cdot\frac{\sqrt{22}}{\sqrt{22}}=\frac{13\sqrt{22}}{2\cdot22}=\frac{13\sqrt{22}}{44}$

$\tan\theta=\frac{9\sqrt{22}}{44}$ $\cot\theta=\frac{2\sqrt{22}}{9}$

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Rationalize the denominator

$\frac{9}{2\sqrt{22}}\cdot\frac{\sqrt{22}}{\sqrt{22}}=\frac{9\sqrt{22}}{2\cdot22}=\frac{9\sqrt{22}}{44}$

$(\sqrt{22})^2$

cot

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mode: degree

Use a calculator to find each value.

Ex. 3) $\sin(9°)$ .1564

Ex. 4) $\cos(37°)$ .7986

Ex. 5) $\tan(48°)$ 1.1106

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(19) $\sec 50°$

$\frac{1}{\cos 50}$

$\boxed{1.5557}$

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