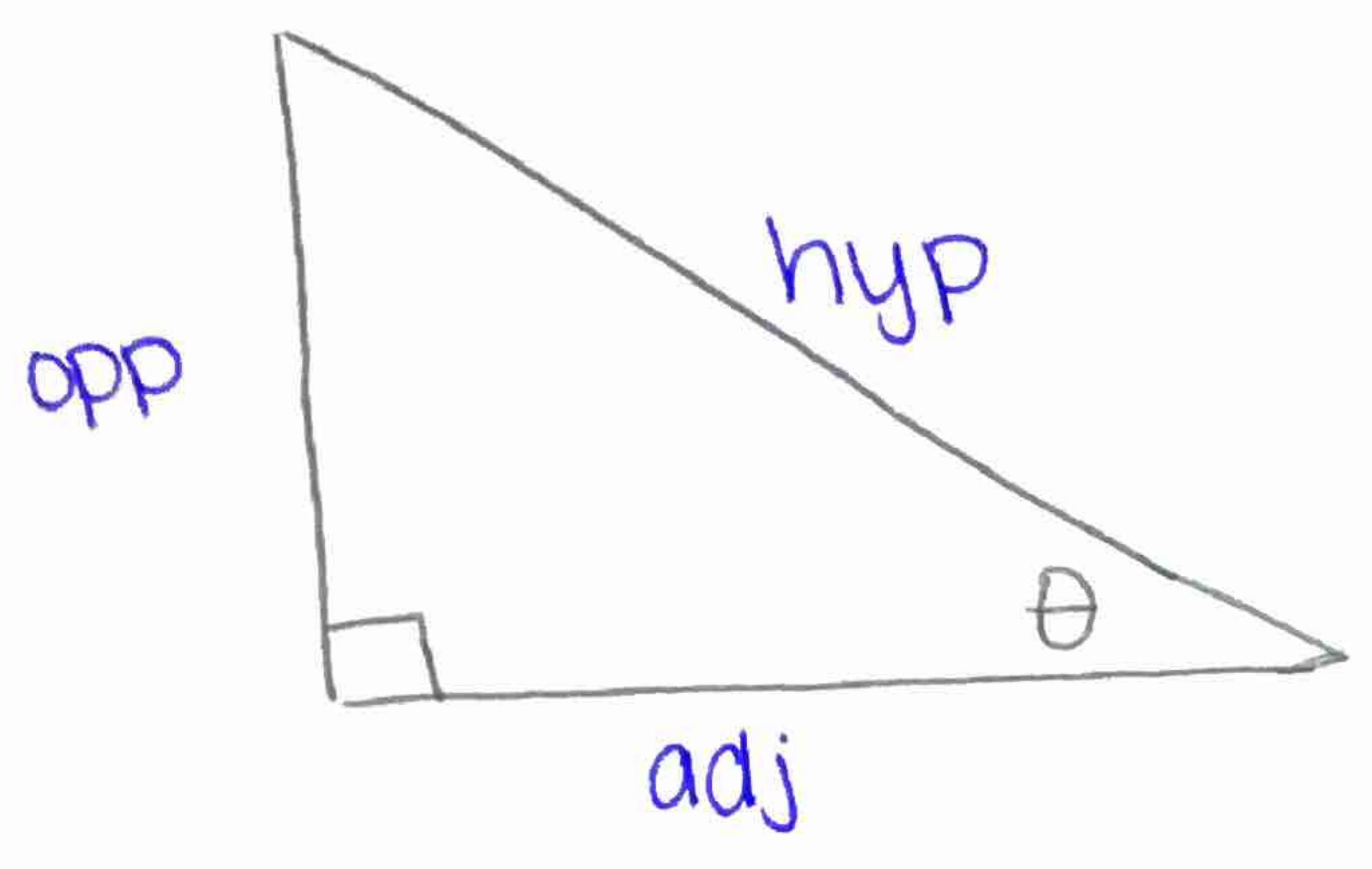


Trig Functions



"SOH-CAH-TUA"

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

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

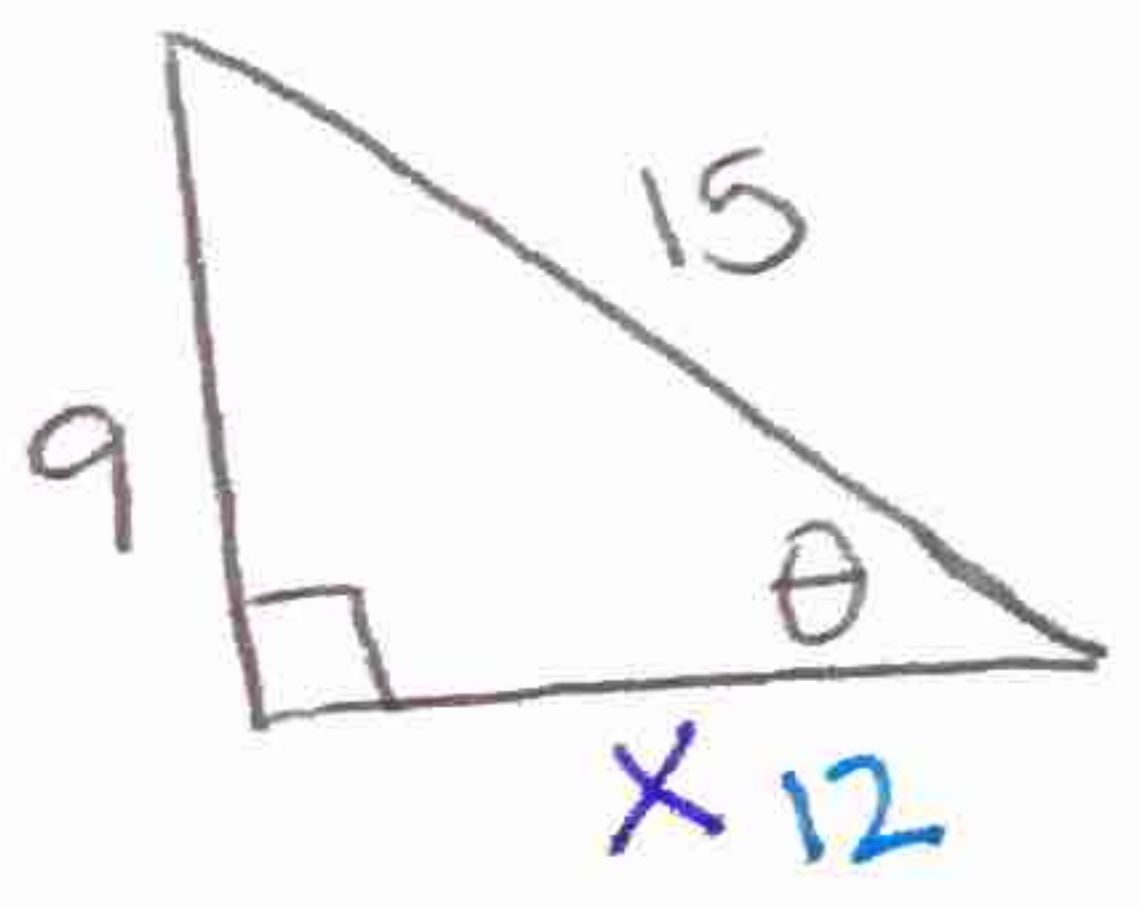
$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

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

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

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

ex 1 find the six trig functions



① find 3rd side
 $9^2 + x^2 = 15^2$
 $x = 12$

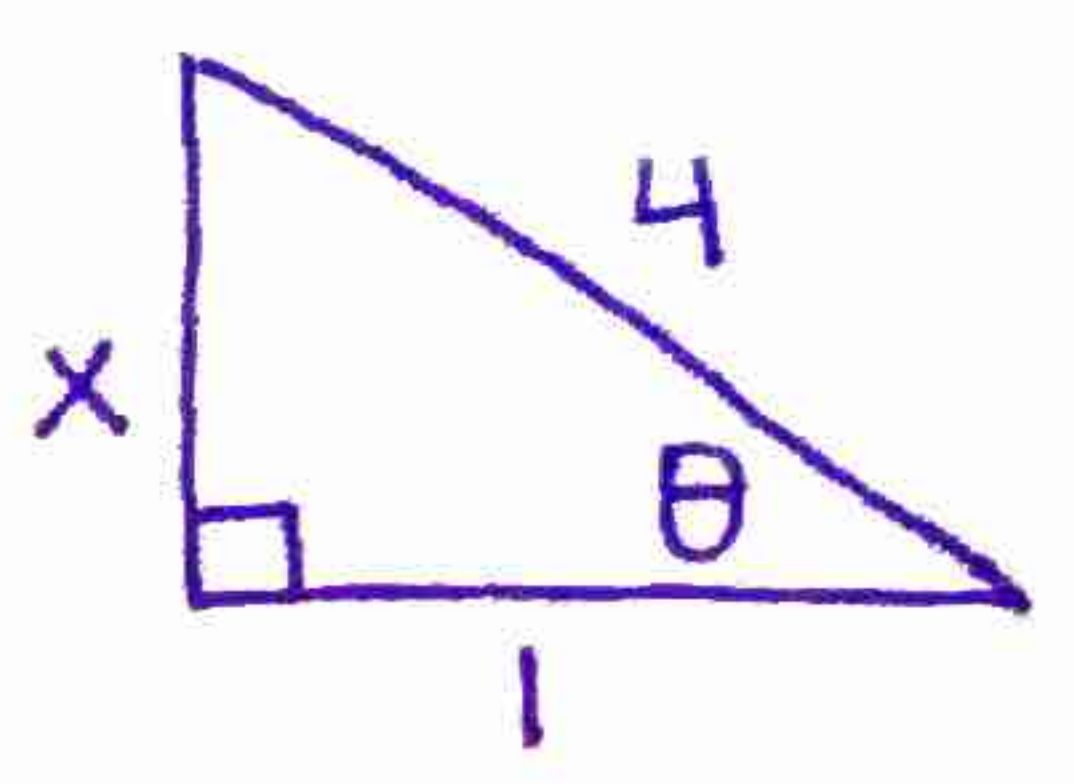
$$\sin \theta = \frac{9}{15} = \frac{3}{5} \quad \csc \theta = \frac{5}{3}$$

$$\cos \theta = \frac{12}{15} = \frac{4}{5} \quad \sec \theta = \frac{5}{4}$$

$$\tan \theta = \frac{9}{12} = \frac{3}{4} \quad \cot \theta = \frac{4}{3}$$

ex 2 Given $\cos \theta = \frac{1}{4}$ find the other trig functions

① draw Δ



$1^2 + x^2 = 4^2$
 $x = \sqrt{15}$

$$\sin \theta = \frac{\sqrt{15}}{4} \quad \csc \theta = \frac{4}{\sqrt{15}} = \frac{4\sqrt{15}}{15}$$

$$\cos \theta = \frac{1}{4} \quad \sec \theta = 4$$

$$\tan \theta = \frac{\sqrt{15}}{1} = \sqrt{15} \quad \cot \theta = \frac{1}{\sqrt{15}} = \frac{\sqrt{15}}{15}$$