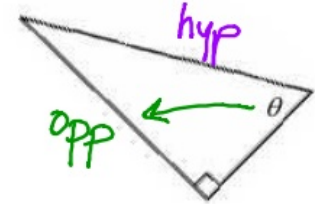
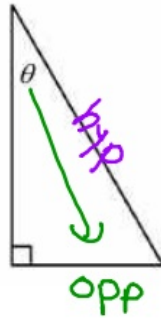
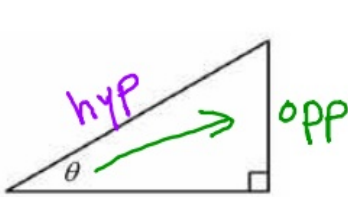


Identify the side *opposite* to  $\theta$  (theta), the side *adjacent* to  $\theta$ , and the *hypotenuse* of each triangle.



Write the trigonometric ratios

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

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

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

Reciprocal functions

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

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

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

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

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

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

If  $\tan \theta = \frac{8}{15}$ , find the other five trigonometric ratios for  $\theta$

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

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

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

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

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

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

$$15^2 + 8^2 = h^2$$

$$225 + 64 = h^2$$

$$289 = h^2$$

$$\sqrt{289} = h$$

$$17 = h$$



If  $\csc \theta = \frac{2}{1}$ , find the other five trigonometric ratios for  $\theta$

$$\sin \theta = \frac{1}{2}$$

$$\csc \theta = \frac{2}{1}$$

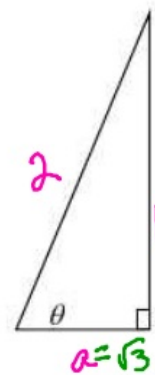
$$\cos \theta = \frac{\sqrt{3}}{2}$$

$$\sec \theta = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

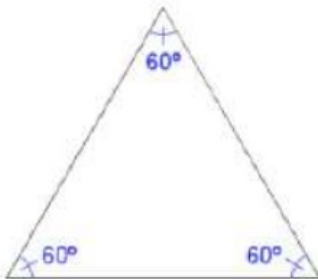
$$\tan \theta = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$\cot \theta = \frac{\sqrt{3}}{1}$$

$$\begin{aligned} 1^2 + a^2 &= 2^2 \\ 1 + a^2 &= 4 \\ \sqrt{a^2} &= \sqrt{3} \\ a &= \sqrt{3} \end{aligned}$$



Building \*\*\* Special Triangle \*\*\*

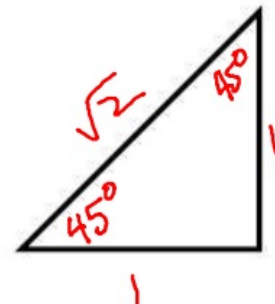
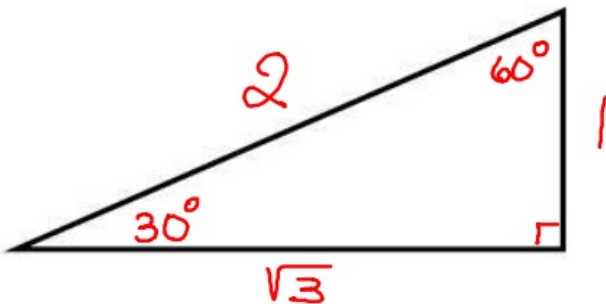


$$1^2 + 1^2 = h^2$$

\*\*\* Special Triangles \*\*\* **YOU MUST MEMORIZE THESE !!!**

30 - 60 - 90

45 - 45 - 90



Find the value of

$$\cos 30^\circ = \frac{\sqrt{3}}{2}$$

$$\tan 60^\circ = \frac{\sqrt{3}}{1}$$

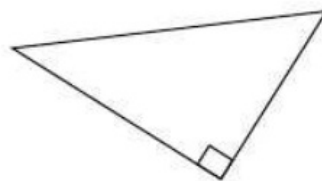
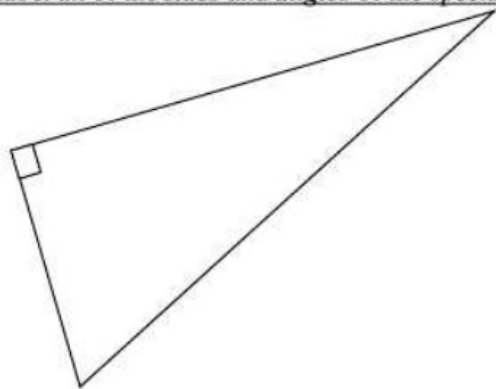
$$\sin 45^\circ = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

Homework

Page 732: 1 - 4, 9 - 16 all and worksheet with special triangles and trigonometric table

*Extra credit quiz was given at the beginning of the class*

Label all of the *sides* and *angles* of the special triangles using degrees measure.



$\theta$	$\sin \theta$	$\cos \theta$	$\tan \theta$	$\csc \theta$	$\sec \theta$	$\cot \theta$
$30^\circ$						
$45^\circ$						
$60^\circ$						