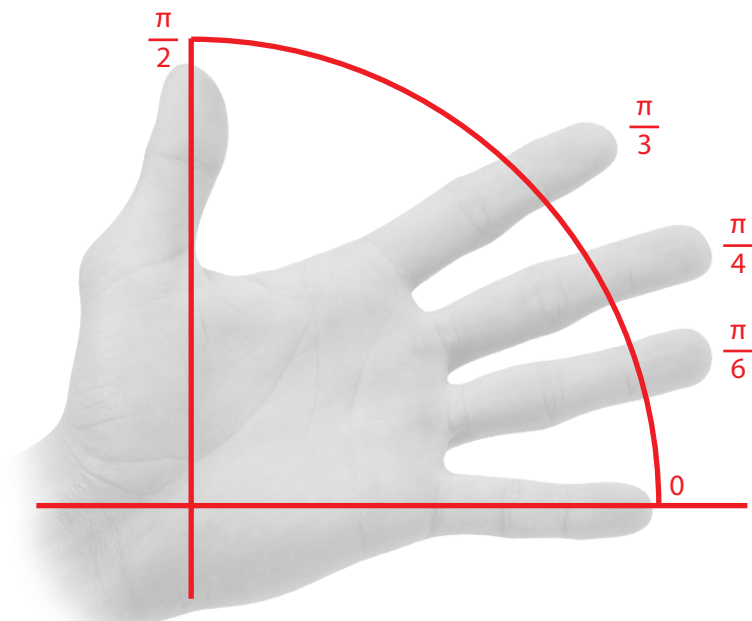


# EVALUATING THE UNIT CIRCLE: LEFT HAND TRICK

$$\frac{\sqrt{\# \text{ fingers}}}{2}$$



**To Evaluate Cosine:**

$$\cos\theta = \frac{\sqrt{\# \text{ fingers left}}}{2}$$

**To Evaluate Sine:**

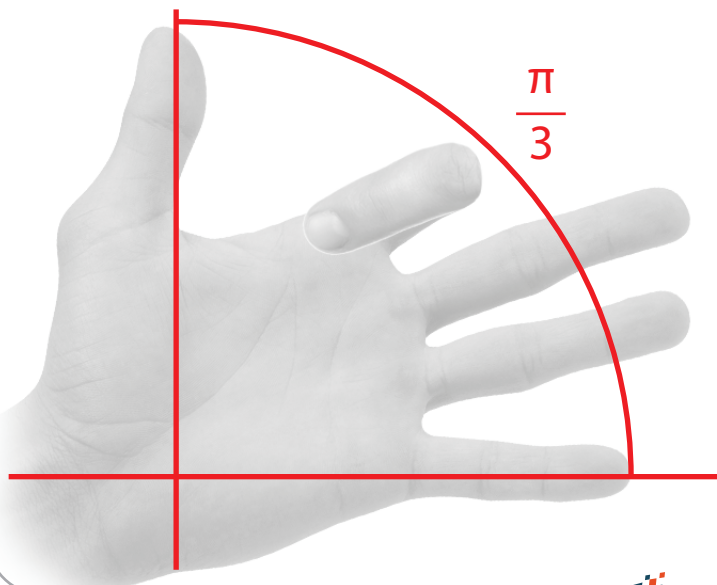
$$\sin\theta = \frac{\sqrt{\# \text{ fingers right}}}{2}$$

**To Evaluate Tangent:**

$$\tan\theta = \frac{\sqrt{\# \text{ fingers right}}}{\sqrt{\# \text{ fingers left}}}$$

1. Imagine your left-hand, palm up, is in the first quadrant of the Unit Circle
2. Lower the finger that represents the desired angle
3. To find  $\cos\theta$  of an angle: Square root of the number of fingers to the left of your bent finger divided by 2
4. To find  $\sin\theta$  of an angle: Square root of the number of fingers to the right of your bent finger divided by 2
5. To find  $\tan\theta$  of an angle: Square root of the number of fingers to the right divided by the Square root of the number of fingers to the left

**Example:** Evaluate  $\cos\theta$ ,  $\sin\theta$ , and  $\tan\theta$  for  $\theta = \frac{\pi}{3}$



$$\cos \frac{\pi}{3} = \frac{\sqrt{\# \text{ fingers left}}}{2} = \frac{\sqrt{1}}{2} = \frac{1}{2}$$

$$\sin \frac{\pi}{3} = \frac{\sqrt{\# \text{ fingers right}}}{2} = \frac{\sqrt{3}}{2}$$

$$\tan \frac{\pi}{3} = \frac{\sqrt{\# \text{ fingers right}}}{\sqrt{\# \text{ fingers left}}} = \frac{\sqrt{3}}{\sqrt{1}} = \frac{\sqrt{3}}{1}$$