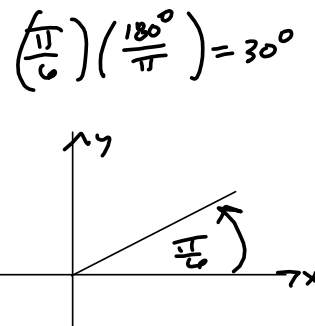
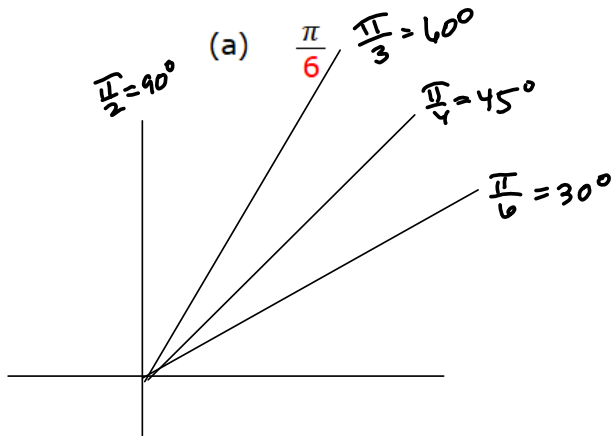
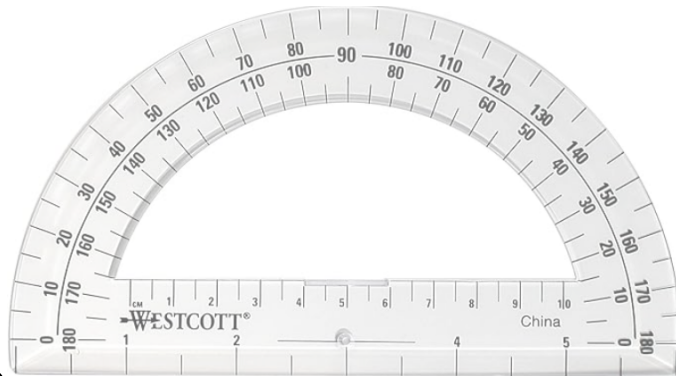
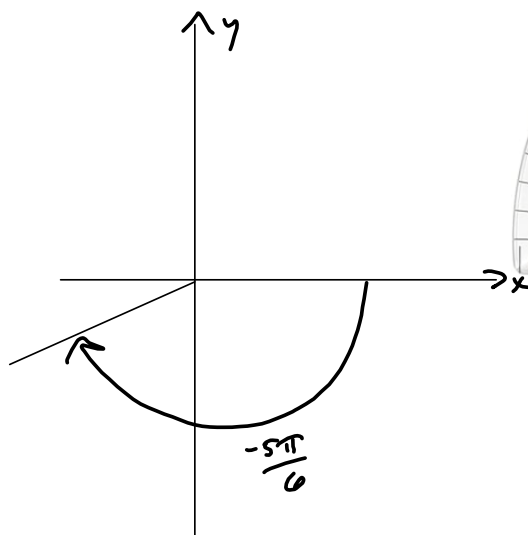


10. Sketch each angle in standard position.

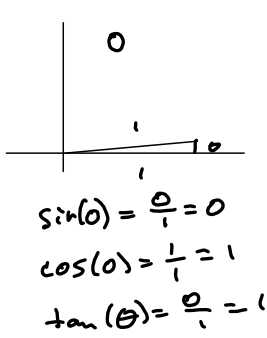


(b) $-\frac{5\pi}{6}$



$-\frac{5\pi}{6} = -150^\circ$

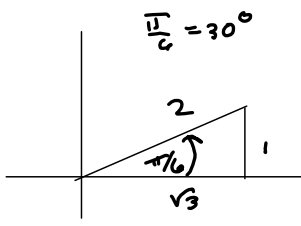
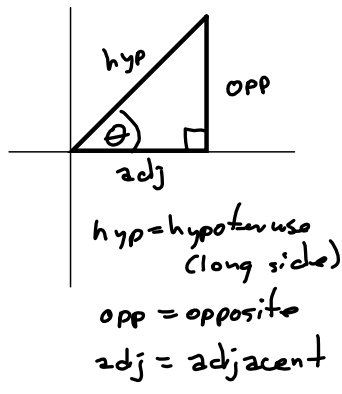
Man, I hate that "Memorize the unit circle" jazz. Learn 0, 30, 45, 60, 90 degrees
 0, $\pi/6$, $\pi/4$, $\pi/3$, $\pi/2$. If you can learn those 5 trig values, you'll be able to reconstruct the entire 12-point unit circle, using reference angles.



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

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

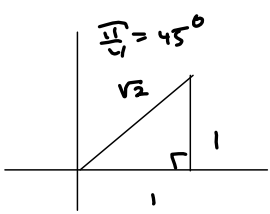
$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$



$$\sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$$

$$\cos\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}$$

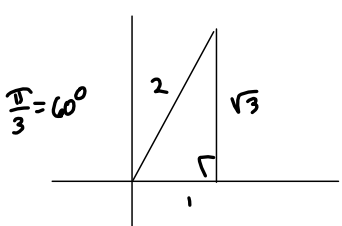
$$\tan\left(\frac{\pi}{6}\right) = \frac{1}{\sqrt{3}} \quad (\text{or } \frac{\sqrt{3}}{3})$$



$$\sin\left(\frac{\pi}{4}\right) = \frac{1}{\sqrt{2}} \quad \text{or } \frac{\sqrt{2}}{2}$$

$$\cos\left(\frac{\pi}{4}\right) = \frac{1}{\sqrt{2}} \quad \dots$$

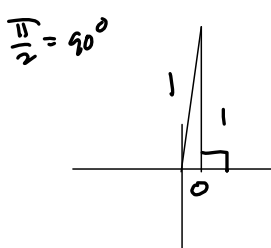
$$\tan\left(\frac{\pi}{4}\right) = \frac{1}{1} = 1$$



$$\sin\left(\frac{\pi}{3}\right) = \frac{\sqrt{3}}{2}$$

$$\cos\left(\frac{\pi}{3}\right) = \frac{1}{2}$$

$$\tan\left(\frac{\pi}{3}\right) = \frac{\sqrt{3}}{1} = \sqrt{3}$$



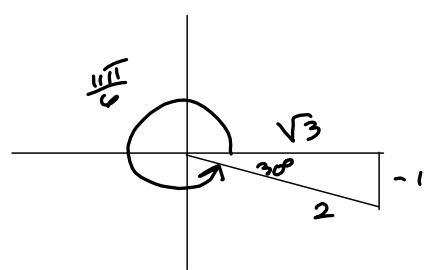
$$\sin\left(\frac{\pi}{2}\right) = 1$$

$$\cos\left(\frac{\pi}{2}\right) = 0$$

$$\tan\left(\frac{\pi}{2}\right) = \frac{1}{0} = \text{Does not exist} = \text{DNE}$$

Now you can do all 12 ;

$$\sin\left(\frac{11\pi}{6}\right) = \sin$$



$$\left(\frac{11\pi}{6}\right) \left(\frac{180}{\pi}\right) = 11(30) = 330^\circ$$

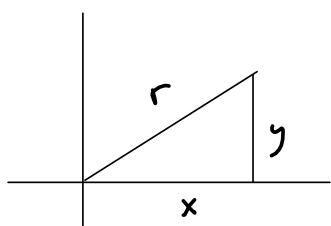
$$= 360^\circ - 30^\circ$$

So reference angle is 30°

$$\sin\left(\frac{11\pi}{6}\right) = -\frac{1}{2}$$

$$\cos\left(\frac{11\pi}{6}\right) = \frac{\sqrt{3}}{2}$$

$$\tan\left(\frac{11\pi}{6}\right) = -\frac{1}{\sqrt{3}} \quad \text{or } -\frac{\sqrt{3}}{3}$$



$$\sin \theta = \frac{y}{r}$$

$$\cos \theta = \frac{x}{r}$$

$$\tan \theta = \frac{y}{x}$$

$$\csc \theta = \frac{r}{y} = \frac{1}{\sin \theta}$$

$$\sec \theta = \frac{r}{x} = \frac{1}{\cos \theta}$$

$$\cot \theta = \frac{x}{y} = \frac{1}{\tan \theta}$$

I always think in terms of $\sin \theta$, $\cos \theta$, $\tan \theta$ & then flip it for the other 3.

Unit circle is good stuff.