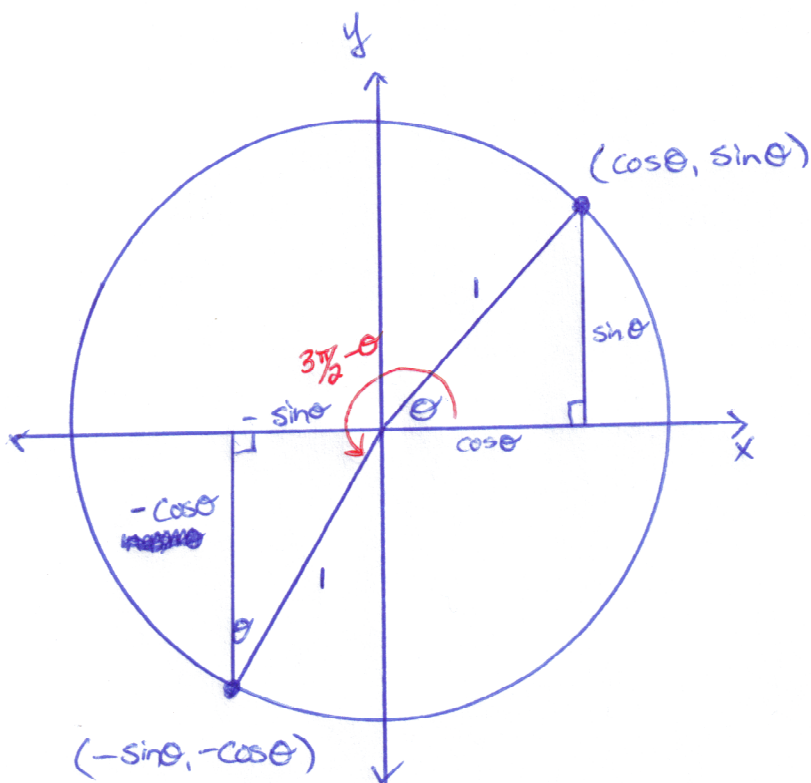


4.3 # 23



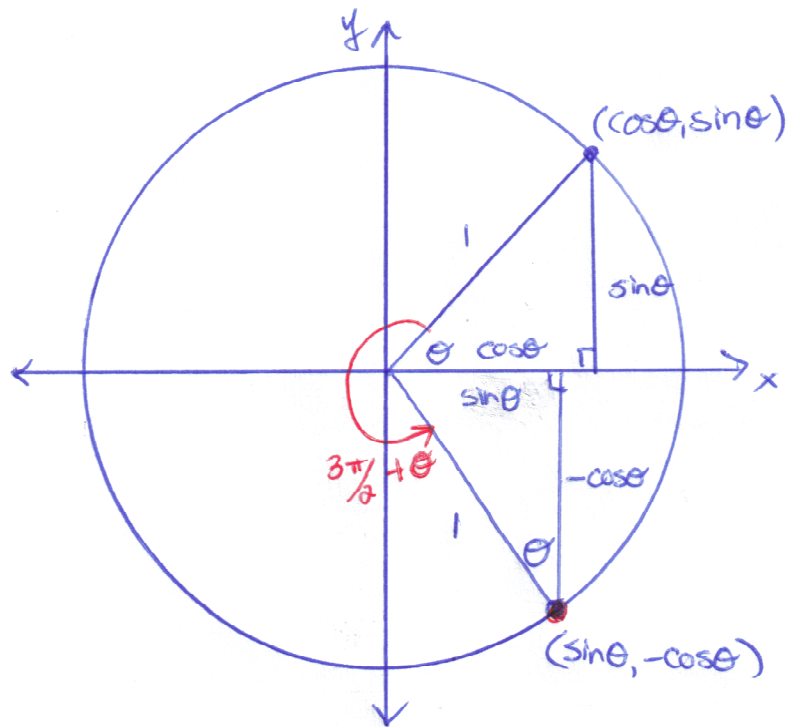
Co-Function identities for $(\frac{3\pi}{2} - \theta)$:

$$\sin(\frac{3\pi}{2} - \theta) = -\cos \theta$$

$$\cos(\frac{3\pi}{2} - \theta) = -\sin \theta$$

$$\tan(\frac{3\pi}{2} - \theta) = \frac{-\cos \theta}{-\sin \theta} = \cot \theta$$

$$\cot(\frac{3\pi}{2} - \theta) = \frac{-\sin \theta}{-\cos \theta} = \tan \theta$$



Co-Function identities for $(\frac{3\pi}{2} + \theta)$:

$$\sin(\frac{3\pi}{2} + \theta) = -\cos \theta$$

$$\cos(\frac{3\pi}{2} + \theta) = \sin \theta$$

$$\tan(\frac{3\pi}{2} + \theta) = \frac{-\cos \theta}{\sin \theta} = -\cot \theta$$

$$\cot(\frac{3\pi}{2} + \theta) = \frac{\sin \theta}{-\cos \theta} = -\tan \theta$$

Given that $\tan(\frac{2\pi}{9}) \doteq 0.8391$

find:

$$a) \cot(\frac{23\pi}{18}) = \cot(\frac{23\pi}{18}) = \cot(\frac{3\pi}{2} - \frac{2\pi}{9})$$

$$\cot(\frac{3\pi}{2} - \frac{2\pi}{9}) = \tan(\frac{2\pi}{9})$$

$$\therefore \cot(\frac{23\pi}{18}) \doteq 0.8391$$

$$b) \cot(\frac{31\pi}{18}) = \cot(\frac{3\pi}{2} + \frac{2\pi}{9})$$

$$\cot(\frac{3\pi}{2} + \frac{2\pi}{9}) = -\tan(\frac{2\pi}{9})$$

$$\therefore \cot(\frac{31\pi}{18}) \doteq -0.8391$$