

(1) [3 points] Convert -225° to radians.

$$-225^\circ = (-225^\circ) \left(\frac{\pi}{180^\circ} \right) = \boxed{\frac{-5\pi}{4}}$$

(2) [3 points] Convert $5\pi/12$ to degrees.

$$\frac{5\pi}{12} = \frac{5\pi}{12} \left(\frac{180^\circ}{\pi} \right) = \boxed{75^\circ}$$

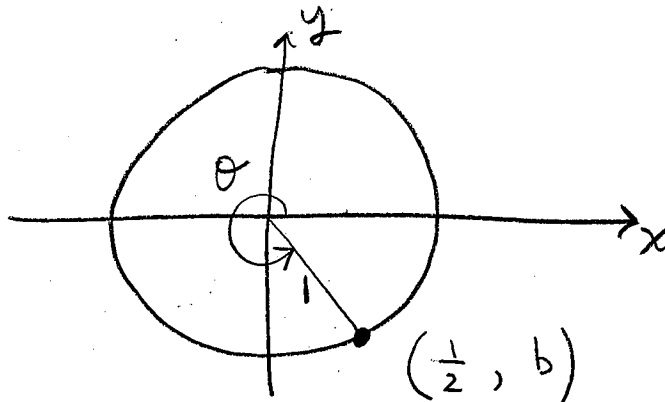
(3) [4 points] Determine $2 \sin \left(\frac{\pi}{3} \right) - 3 \cos \left(\frac{\pi}{6} \right)$

$$\begin{aligned} & 2 \sin \left(\frac{\pi}{3} \right) - 3 \cos \left(\frac{\pi}{6} \right) \\ &= 2 \left(\frac{\sqrt{3}}{2} \right) - 3 \left(\frac{\sqrt{3}}{2} \right) \\ &= \boxed{-\frac{\sqrt{3}}{2}} \end{aligned}$$

(4) [5 points] If $\sec \theta = 2$ and $\sin \theta < 0$, determine $\cot \theta$.

$$\sec(\theta) = 2 \Rightarrow \frac{1}{\cos(\theta)} = 2 \Rightarrow \cos(\theta) = \frac{1}{2}.$$

Since $\sin(\theta) < 0$, θ is



$$\therefore \sin(\theta) = b = -\sqrt{1 - \left(\frac{1}{2}\right)^2} = -\frac{\sqrt{3}}{2}.$$

$$\begin{aligned} \therefore \cot(\theta) &= \frac{\cos(\theta)}{\sin(\theta)} \\ &= \frac{\left(\frac{1}{2}\right)}{\left(-\frac{\sqrt{3}}{2}\right)} \\ &= \boxed{-\frac{1}{\sqrt{3}}} \end{aligned}$$