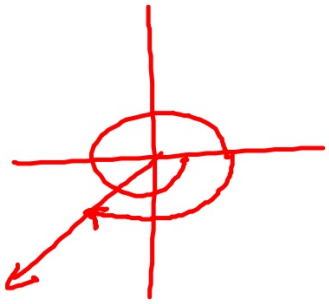
23.) $\sec\left(\frac{-11\pi}{4}\right) = -\sqrt{2}$



$\sec\frac{5\pi}{4}$

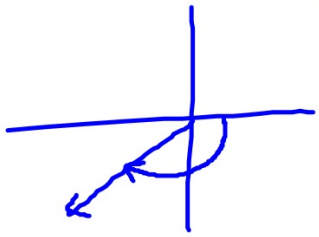
$\frac{-11\pi}{4} + 2\pi$

$\frac{-3\pi}{4}$

$-\frac{8\pi}{4}$

$-\frac{12\pi}{4}$

-3π



22.) $\cos \frac{49\pi}{6} = \cos \frac{\pi}{6}$

$\frac{49\pi}{6} - 2\pi$ $\qquad = \frac{\sqrt{3}}{2}$

$\frac{37\pi}{6} - 6\pi$

$\frac{\pi}{6}$

35.) $\sin^2\left(\frac{11\pi}{6}\right) + \cos^2\left(\frac{11\pi}{6}\right)$

$$\left(\sin\frac{11\pi}{6}\right)^2 + \left(\cos\frac{11\pi}{6}\right)^2$$

$$\left(-\frac{1}{2}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2$$

$$\frac{1}{4} + \frac{3}{4} = 1$$

9.3 Continued

Reference Angle: the acute angle formed by the terminal side of angle θ and the closest x-axis.

reference angle θ'

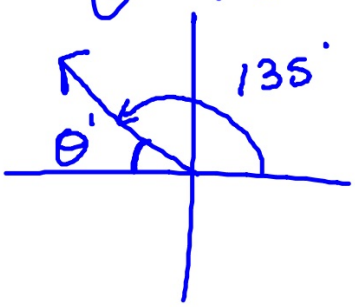
$0 < \theta' < 90^\circ$

$0 < \theta' < \frac{\pi}{2}$

There is never a reference angle for quadrantal angles.

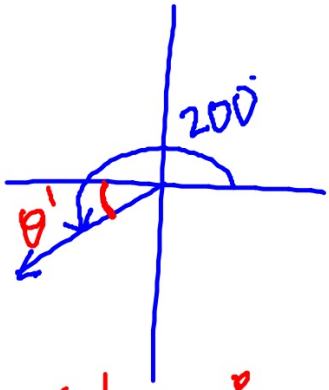
Find the reference angle.

$\theta = 135^\circ$



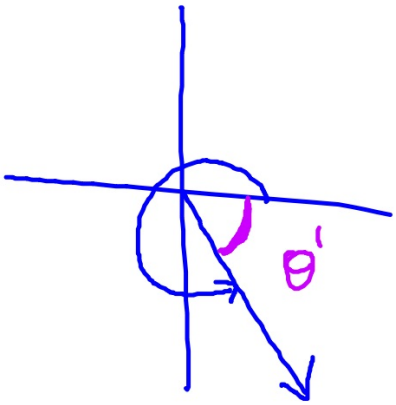
$\theta' = 45^\circ$

$\theta = 200^\circ$



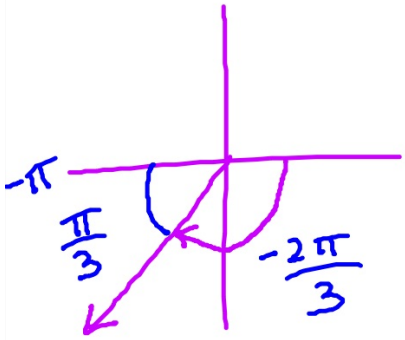
$\theta' = 20^\circ$

$\theta = 302^\circ$



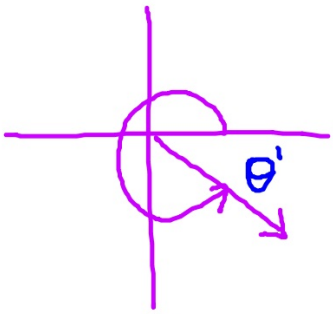
$\theta' = 58^\circ$

$\theta = \frac{-2\pi}{3}$



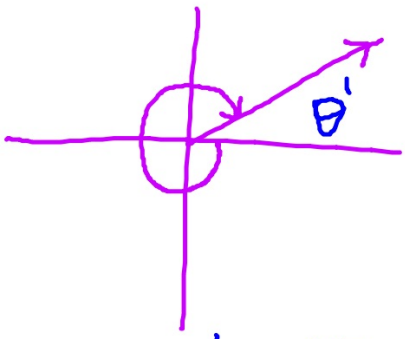
$\theta' = \frac{\pi}{3}$

$\theta = \frac{7\pi}{4}$



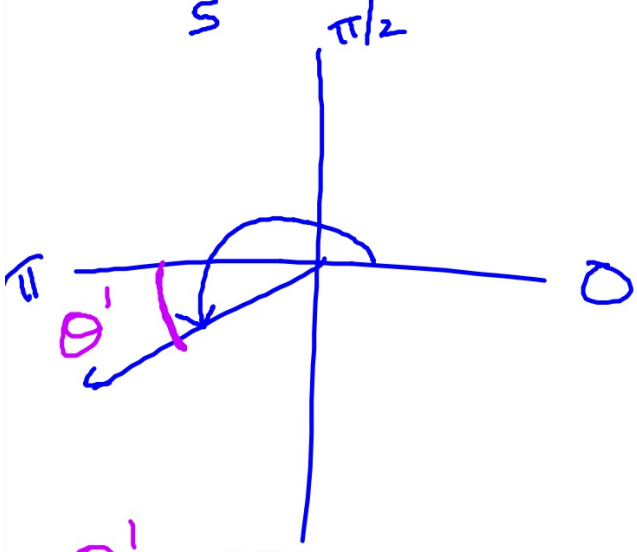
$\theta' = \frac{\pi}{4}$

$\theta = \frac{-11\pi}{6}$



$\theta' = \frac{\pi}{6}$

$$\frac{7\pi}{5}$$



$$\theta' = \frac{2\pi}{5}$$

What is the sign? (Positive or negative)

$\sin 332^\circ$

$\sin(332^\circ) < 0$

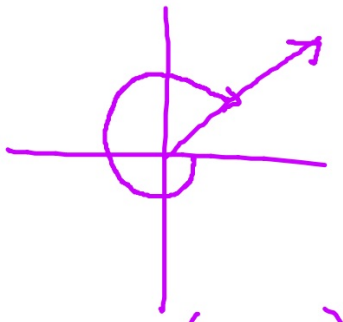
$(-)$

$\cos \frac{2\pi}{3}$

$\cos \frac{2\pi}{3} < 0$

$(-)$

$\sin(-332^\circ)$



$\sin(-332^\circ) > 0$

$(+)$

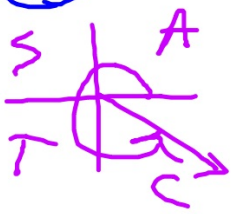
Rewrite using a reference angle, then evaluate.

① $\cos\frac{5\pi}{4} = -\cos\frac{\pi}{4} = -\frac{\sqrt{2}}{2}$

III

② $\sin\frac{11\pi}{6} = -\frac{1}{2}$

$\searrow -\sin\frac{\pi}{6}$



③ $\cot\frac{5\pi}{6} = -\cot\frac{\pi}{6}$

II $= -\dfrac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = -\sqrt{3}$

$\cot\theta = \dfrac{\cos\theta}{\sin\theta}$

$= \dfrac{x}{y}$

4 $\tan\frac{4\pi}{3} = +\tan\frac{\pi}{3} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}}$

III

$= \sqrt{3}$

+

	0	30°	45°	60°	90°
sinθ	0	1/2	$\sqrt{2}/2$	$\sqrt{3}/2$	1
cosθ	1	$\sqrt{3}/2$	$\sqrt{2}/2$	1/2	0
tanθ	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	und.

$\sqrt{\frac{0}{4}}$ $\sqrt{\frac{1}{4}}$ $\sqrt{\frac{2}{4}}$ $\sqrt{\frac{3}{4}}$ $\sqrt{\frac{4}{4}}$