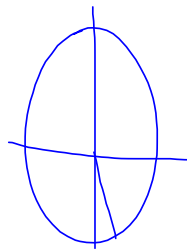


4.3 Approximate Values of Trig Ratios

Find $\sin 60^\circ$ and $\sin \frac{\pi}{3}$ with your calc.

$$\begin{array}{ccc} \downarrow & & \downarrow \\ 0.8660 & \rightarrow & \frac{\sqrt{3}}{2} \leftarrow 0.8660 \end{array}$$

Find $\sin(-60^\circ)$

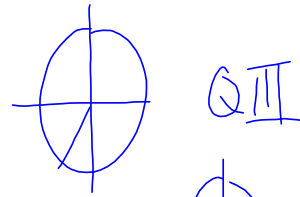


$$\begin{aligned} \sin(-60^\circ) &= -\frac{\sqrt{3}}{2} \\ &= -0.8660 \end{aligned}$$

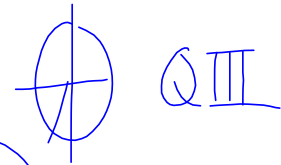
$$\sin(300^\circ) = -0.8660$$

Determine the following to 4 decimal places:

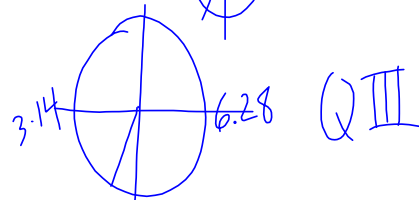
$$a) \tan \frac{7\pi}{5} \doteq 3.0777$$



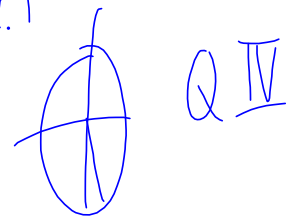
$$b) \cos 260^\circ \doteq -0.1736$$



$$c) \sin 4.2 \doteq -0.8716$$




$$d) \csc(-70^\circ) \doteq -1.0642$$



We want the reciprocal
of $\sin(-70^\circ)$.

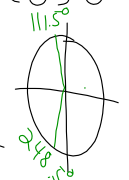
$$\csc(-70^\circ) = \frac{1}{\sin(-70^\circ)}$$

Finding Angles Given Trig Ratios

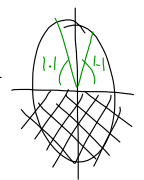
Think back: $\tan \theta = \frac{4}{5}$  $\theta = \tan^{-1}(4/5)$
 $\theta \approx 38^\circ$ ish

Find θ that satisfies each "equation."

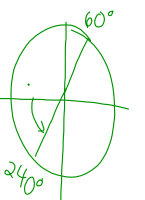
a) $\cos \theta = -0.366, 0^\circ \leq \theta < 360^\circ$ (tenth)

QII or QIII  $\cos^{-1}(-0.366) = 111.5^\circ$
 $360^\circ - 111.5^\circ = 248.5^\circ$

b) $\sin \theta = 0.879, 0 \leq \theta < 2\pi$ (tenth)

QI or QII  $\sin^{-1}(0.879) = 1.1$ radians
 $\pi - 1.1 = 2.1$ radians

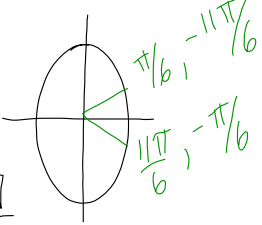
c) $\tan \theta = \sqrt{3}, -180^\circ \leq \theta < 180^\circ$ (exact)

QI or QIII  $\tan^{-1}(\sqrt{3}) = 60^\circ$
 $180^\circ + 60^\circ = 240^\circ = -120^\circ$

d) $\sec \theta = \frac{2}{\sqrt{3}}$ (or $\frac{2\sqrt{3}}{3}$), $-2\pi \leq \theta < 2\pi$ (exact)

$\Leftrightarrow \frac{1}{\cos \theta} = \frac{2}{\sqrt{3}} \Leftrightarrow$

$\frac{\cos \theta}{1} = \frac{\sqrt{3}}{2}$

QI, IV 

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