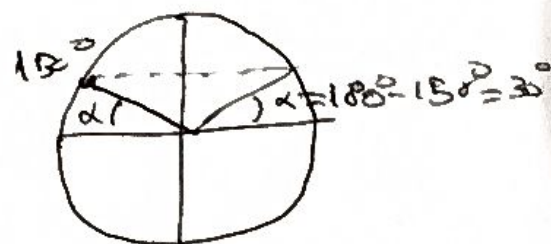


EJEMPLO 1. En cada apartado calcula las razones trigonométricas directas del ángulo correspondiente a partir de un ángulo del primer cuadrante.

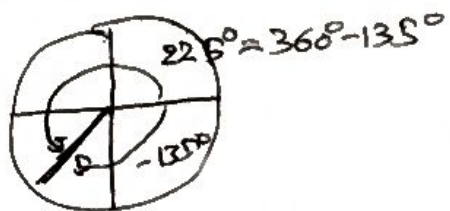
a) 1230° b) -2295° c) $\frac{62\pi}{3}$ d) $\frac{159\pi}{4}$

a) $\frac{1230^\circ}{360^\circ} = 3 + \frac{5}{12} \Rightarrow 1230^\circ = 3 \cdot 360^\circ + \frac{5}{12} \cdot 360^\circ = 3 \cdot 360^\circ + 150^\circ$
 $\hookrightarrow$ Fracción mixta (PARMANI)
 $\hookrightarrow 2^\circ$ CUADRANTE

$$\begin{cases} \cos 1230^\circ = \cos 150^\circ = -\cos 30^\circ = -\frac{\sqrt{3}}{2} \\ \sin 1230^\circ = \sin 150^\circ = \sin 30^\circ = \frac{1}{2} \\ \tan 1230^\circ = \tan 150^\circ = -\tan 30^\circ = \frac{1/2}{-\sqrt{3}/2} = -\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3} \end{cases}$$

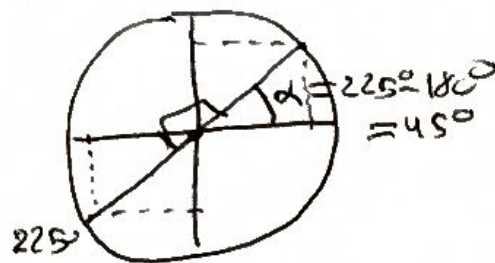


b) $\frac{-2295^\circ}{-360^\circ} = 6 + \frac{3}{8} \Rightarrow -2295^\circ = 6 \cdot (-360^\circ) + \frac{3}{8} \cdot (-360^\circ) = 6 \cdot (-360^\circ) - 135^\circ$
 $= 6 \cdot (-360^\circ) - 360^\circ + 225^\circ$
 $= 7 \cdot (-360^\circ) + 225^\circ$
 $\hookrightarrow 3^\circ$ cuadrante



$-135^\circ = -360^\circ + 225^\circ$

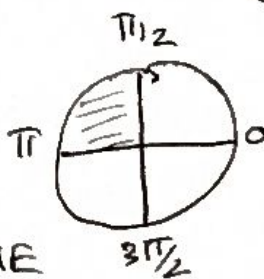
$$\begin{cases} \cos (-2295^\circ) = \cos 225^\circ = -\cos 45^\circ = -\frac{1}{2} \\ \sin (-2295^\circ) = \sin 225^\circ = -\sin 45^\circ = -\frac{1}{2} \\ \tan (-2295^\circ) = \tan 225^\circ = \tan 45^\circ = \frac{-1/2}{-1/2} = 1 \end{cases}$$



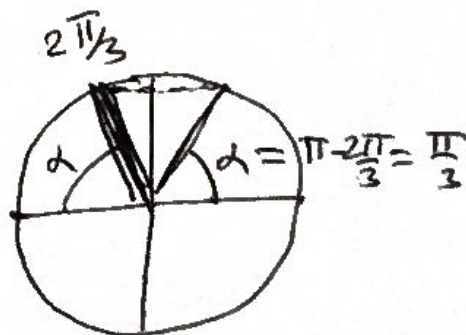
c) $\frac{62\pi}{3} = \frac{62\pi}{2 \cdot 3\pi} = \frac{31}{3} = 10 + \frac{1}{3}$

$\frac{31}{3} = 10 + \frac{1}{3}$
 $\frac{31}{3} = 10 \cdot \frac{1}{3}$

$\frac{62\pi}{3} = 10 \cdot 2\pi + \frac{2\pi}{3}$

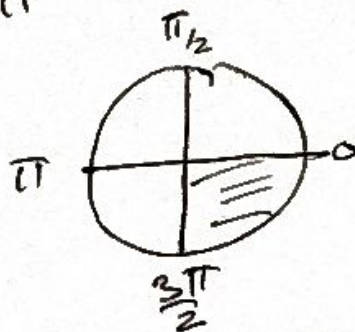


$$\begin{cases} \cos (\frac{62\pi}{3}) = \cos (\frac{2\pi}{3}) = -\cos \frac{\pi}{3} = -\frac{1}{2} \\ \sin (\frac{62\pi}{3}) = \sin (\frac{2\pi}{3}) = \sin \frac{\pi}{3} = \frac{\sqrt{3}}{2} \\ \tan (\frac{62\pi}{3}) = \tan (\frac{2\pi}{3}) = -\tan \frac{\pi}{3} = \frac{\sqrt{3}/2}{-1/2} = -\sqrt{3} \end{cases}$$

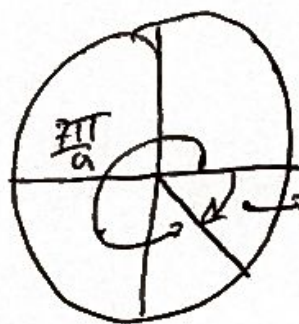


$$d) \frac{\frac{159\pi}{4}}{2\pi} = \frac{159\pi}{8\pi} = 19 + \frac{7}{8} \Rightarrow \frac{159\pi}{4} = 19 \cdot 2\pi + \frac{7}{8} \cdot 2\pi = 19 \cdot 2\pi + \frac{7\pi}{4}$$

4th QUADRANT



$$\begin{cases} \cos\left(\frac{159\pi}{4}\right) = \cos\left(\frac{7\pi}{4}\right) = \cos\left(-\frac{\pi}{4}\right) = \cos\frac{\pi}{4} = \frac{\sqrt{2}}{2} \\ \sin\left(\frac{159\pi}{4}\right) = \sin\left(\frac{7\pi}{4}\right) = \sin\left(-\frac{\pi}{4}\right) = -\sin\frac{\pi}{4} = -\frac{\sqrt{2}}{2} \\ \tan\left(\frac{159\pi}{4}\right) = \tan\left(\frac{7\pi}{4}\right) = \tan\left(-\frac{\pi}{4}\right) = -\tan\frac{\pi}{4} = \frac{-\sqrt{2}/2}{\sqrt{2}/2} = -1 \end{cases}$$



$$2\pi - \frac{7\pi}{4} = \frac{8\pi}{4} - \frac{7\pi}{4} = \frac{\pi}{4}$$

