Name ______________________ Date __________________________

Symmetry of the Unit Circle and Odd-Even Properties - Guided Lesson Explanation

Explanation#1

The sine function f(t) = sin t is odd and the cosine function g(t) = cos t is even; that is, for every real number t,

Sin$(-\frac{\pi}{3})$ = -sin$\frac{\pi}{3}$ $= -\frac{\sqrt{3}}{2}$

Cos $(-\frac{\pi}{3})$ = cos$\frac{\pi}{3}$ $= \frac{1}{2}$

Note that the signs of the answers are consistent with the fact that the terminal side of the angle −Π/3 radian lies in quadrant IV.

Explanation#2

The sine function f(t) = sin t is odd and the cosine function g(t) = cos t is even; that is, for every real number t,

Sin$(-\frac{2\pi}{3})$ = -sin$\frac{2\pi}{3}$ $= -\frac{\sqrt{3}}{2}$

Cos $(-\frac{2\pi}{3})$ = cos $\frac{2\pi}{3}$ $= -\frac{1}{2}$

Note that the signs of the answers are consistent with the fact that the terminal side of the angle −2Π/3 radian lies in quadrant III.

Explanation#3

The sine function f(t) = sin t is odd and the cosine function g(t) = cos t is even; that is, for every real number t,

Sin$(-\frac{3\pi}{4})$ = -sin$\frac{3\pi}{4}$ $= -\frac{\sqrt{2}}{2}$

Cos $(-\frac{3\pi}{4})$ = cos $\frac{3\pi}{4}$ $= -\frac{\sqrt{2}}{2}$

Note that the signs of the answers are consistent with the fact that the terminal side of the angle −3Π/4 radian lies in quadrant III.