[10-01-12-T11]

Map real number to unit circle

■ **Chapter 7 (*In which our beloved teacher discovers what everyone else already knows*).**

[EX1] The real number $\frac{55\pi}{4} \longrightarrow$? point on unit circle.

$\frac{55\pi}{4} \div 2\pi = \frac{55\pi}{4} \times \frac{1}{2\pi} = \frac{55}{8} = 6\frac{7}{8}$.

So, $\frac{55\pi}{4}$ equals 6 full cycles of 2π plus $\frac{7}{8}$ of a cycle of 2π.

$\frac{7}{8}(2\pi) = \frac{7\pi}{4}$

$\therefore \frac{55\pi}{4} \longrightarrow \frac{7\pi}{4}$ on the unit circle.

[EX2] $\frac{47\pi}{3} \longrightarrow$? point on unit circle.

$\frac{47\pi}{3} \times \frac{1}{2\pi} = \frac{47}{6} = 7\frac{5}{6}$.

So, $\frac{47\pi}{3}$ equals 7 full cycles of 2π plus $\frac{5}{6}$ of a cycle of 2π.

$\frac{5}{6}(2\pi) = \frac{5\pi}{3}$

$\therefore \frac{47\pi}{3} \longrightarrow \frac{5\pi}{3}$ on the unit circle.

[EX3] $37 \longrightarrow$? point on unit circle.

$37 \div 2\pi \approx 37 \div 6.28 = 5.89$.

So, 37 equals 5 full cycles of 2π plus 0.89 of a cycle of 2π.

$0.89 \times 2\pi = 1.78\pi$

$\therefore 37 \longrightarrow 1.78\pi$ on the unit circle (approximately).

OVER ⟶

[EX4] $\frac{3}{8} \longrightarrow$? point on unit circle.

$\frac{3}{8} \div 2\,\pi \approx 0.375 \div 6.28 = 0.0597.$

So, $\frac{3}{8}$ equals 0 full cycles of 2π plus 0.0597 of a cycle of 2π.

$0.0597 \times 2\,\pi = 0.1194\,\pi$

$\therefore \frac{3}{8} \longrightarrow 0.1194\,\pi$ on the unit circle (approximately).