DAY 8

(2) a) $y = \frac{3}{2}\cos\left(\frac{\pi}{2}x + \frac{\pi}{4}\right)$

MAX: $y = \frac{3}{2}$

P.O.I: $y = 0$

MIN: $y = -\frac{3}{2}$

PERIOD $= \frac{2\pi}{\frac{\pi}{2}} = 4$ (NO $\pi$!)

BEGIN PERIOD

$4\left[\frac{\pi}{2}x + \frac{\pi}{4} = 0\right]$

$2\pi x + \pi = 0$

$2\pi x = -\pi$

$x = -\frac{1}{2}$ (NO $\pi$!)

END PERIOD

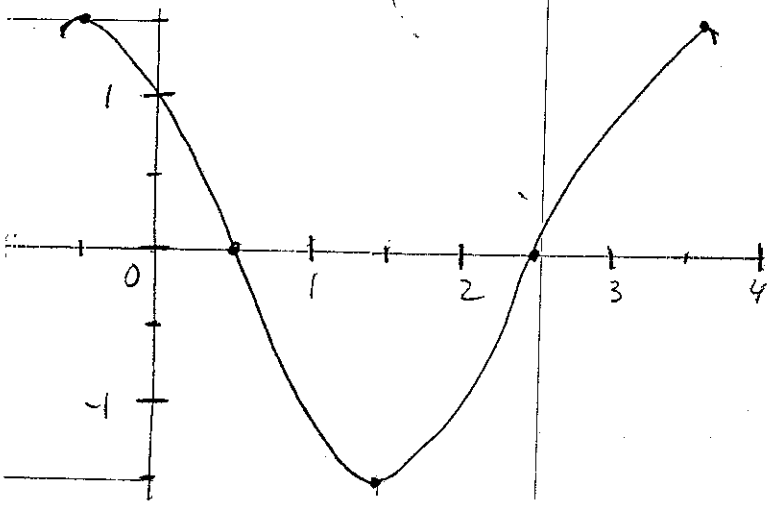
$4\left[\frac{\pi}{2}x + \frac{\pi}{4} = 2\pi\right]$

$2\pi x + \pi = 8\pi$

$2\pi x = 7\pi$

$x = \frac{7}{2}$ (NO $\pi$!)

PERIOD $= \frac{7}{2} - \frac{-1}{2} = \frac{8}{2} = 4$ ✓




DAY 8
CONTINUED ON BACK.

DAY 8 (CONTINUED FROM FRONT)

(2) b) $y = 2\cos 3x + 1$

MAX: $y = 3$

P.O.I $y = 1$

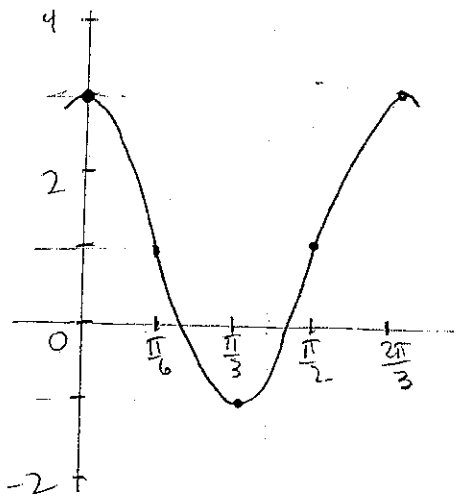
MIN: $y = -1$

PERIOD $= \frac{2\pi}{3}$

NO PHASE SHIFT

UNITS ON x-AXIS?

$\frac{2\pi}{3} \div 4 = \frac{2\pi}{3} \cdot \frac{1}{4} = \frac{\pi}{6}$



DAY 8
2 OF 2

(2) c) $y = -\sin\frac{1}{2}x + 1$

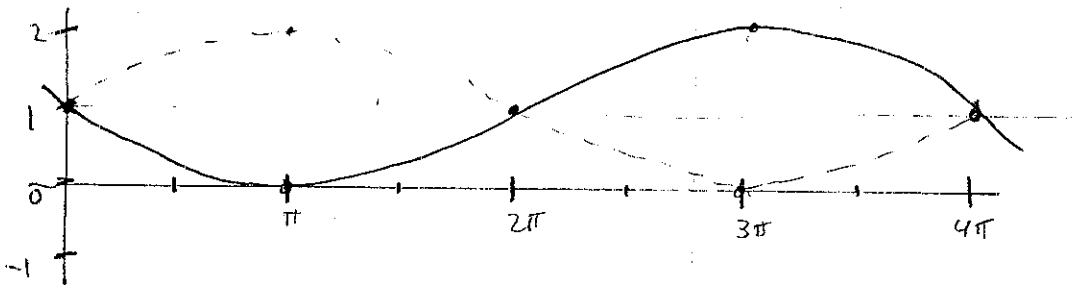
ANALYZE: $y = \sin\frac{1}{2}x + 1$ --- (THEN REFLECT)

MAX: $y = 2$

MID: $y = 1$

MIN: $y = 0$

$\text{PERIOD} = \frac{2\pi}{\frac{1}{2}} = 4\pi$




(3) $\dfrac{\csc A + \cot A}{\tan A + \sin A} = \dfrac{\csc A + \cot A}{\tan A + \sin A}$

$= \dfrac{\frac{1}{\sin A} + \frac{\cos A}{\sin A}}{\frac{\sin A}{\cos A} + \sin A} \cdot \dfrac{\sin A \cdot \cos A}{\sin A \cos A}$

$= \dfrac{\cos A + \cos^2 A}{\sin^2 A + \sin^2 A \cdot \cos A}$

$= \dfrac{\cos A(1+\cos A)}{\sin^2 A(1+\cos A)}$

$= \dfrac{\cos A}{\sin^2 A}$

$= \dfrac{\cos A}{\sin A \cdot \sin A}$

$= \dfrac{\cos A}{\sin A} \cdot \dfrac{1}{\sin A}$ ← (WHEW!)

$= \cot A \cdot \csc A$

DAY 8