SEC. 2.7 GRAPHING TECHNIQUE

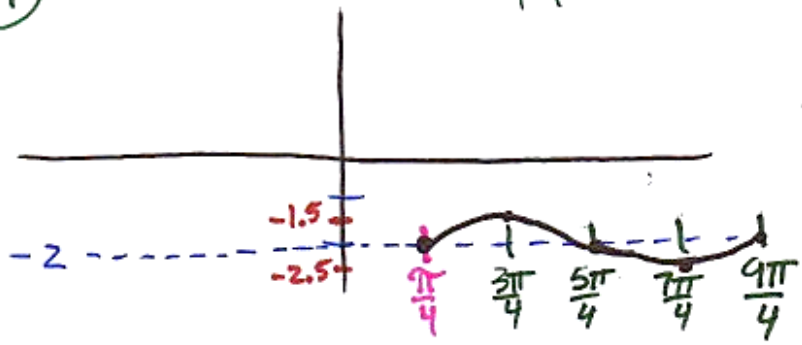
GENERAL FORM: $y = d + a \sin(b(x-c))$

- d: VERTICAL SHIFT
- a: AMPLITUDE $|a|$
- c: (HORIZONTAL) PHASE SHIFT
- b: PERIOD: $\frac{2\pi}{|b|}$ for SIN, CSC, COS, SEC; $\frac{\pi}{|b|}$ for COT, TAN

EXAMPLE: $y = -2 + \frac{1}{2}\sin\left(1x - \frac{\pi}{4}\right)$

ORDER

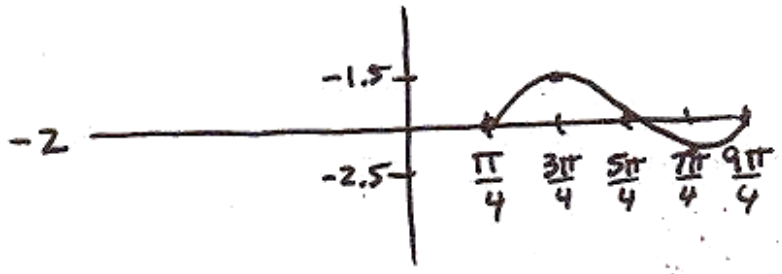
1. VERTICAL SHIFT: DOWN 2
2. AMPLITUDE: $\left|\frac{1}{2}\right| = \frac{1}{2}$
3. PHASE SHIFT: RIGHT $\frac{\pi}{4}$
4. PERIOD: $\frac{2\pi}{|1|} = 2\pi$



$\frac{1}{4} + 2 = \frac{9}{4}$

START + PERIOD = LAST TICK MARK

PROPOSAL:



#5 $y = -4 \sin\left(\frac{2}{3}x + \frac{\pi}{6}\right)$

$\frac{2}{3}\left(x + \frac{\pi}{4}\right)$

$\frac{c}{b}$ $\frac{\frac{\pi}{6}}{\frac{2}{3}} \cdot \frac{3}{2}$

AMP: 4

REFLECTED:

V. S. NO

PHASE SHIFT: LEFT $\frac{\pi}{4}$

PER: $\frac{2\pi}{\frac{2}{3}} = \frac{6\pi}{2} = 3\pi$

#27 $y = \csc\left(\frac{x}{3} - \frac{\pi}{2}\right)$

$\csc\left(\frac{1}{3}\left(x - \frac{3\pi}{2}\right)\right)$

AMP: 1

V.S. NO

PER: $\frac{2\pi}{\frac{1}{3}} = 6\pi$

P.S. RIGHT $\frac{3\pi}{2}$