1.a. $y = -4\sin 3x + 1$

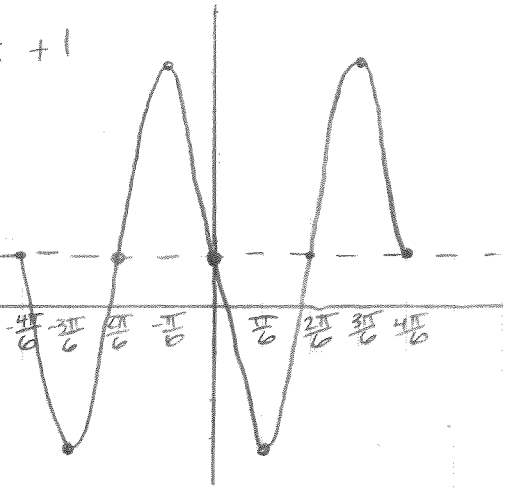
Amp = 4

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

$Inc = \frac{2\pi}{12} = \frac{\pi}{6}$

SP = 0

SA → $y = 1$



b. $y = 2\cos 4x - 5$

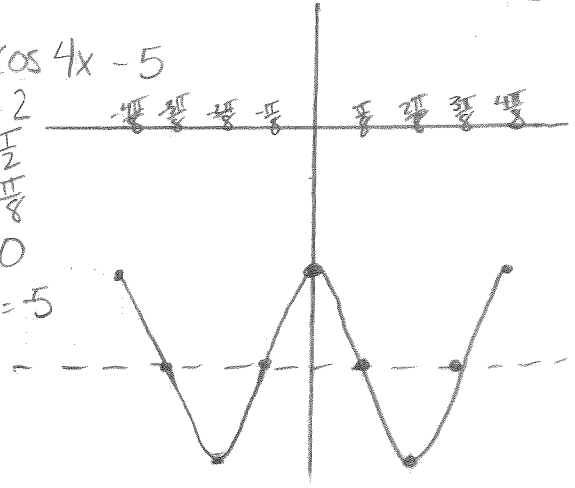
Amp = 2

$P = \frac{\pi}{2}$

$Inc = \frac{\pi}{8}$

SP = 0

SA → $y = -5$



c. $y = 5\sin\left(\frac{x}{2} - \pi\right) - 2$

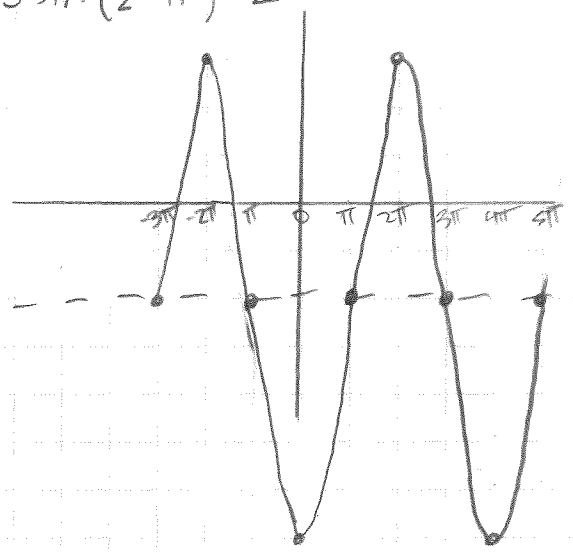
Amp = 5

$P = 4\pi$

$Inc = \pi$

SP = 2π

SA $y = -2$



d. $y = -2\cos\left(4x + \frac{\pi}{2}\right)$

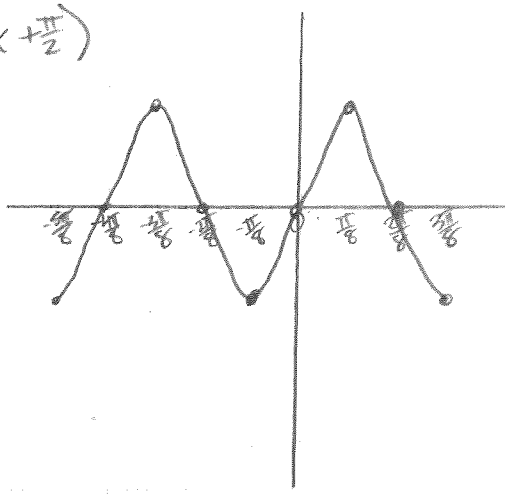
Amp = 2

$P = \frac{\pi}{2}$

$Inc = \frac{\pi}{8}$

SP = $-\frac{\pi}{8}$

SA $y = 0$



e. $y = \frac{1}{2}\csc\frac{1}{2}x$

Amp = $\frac{1}{2}$

$P = 4\pi$

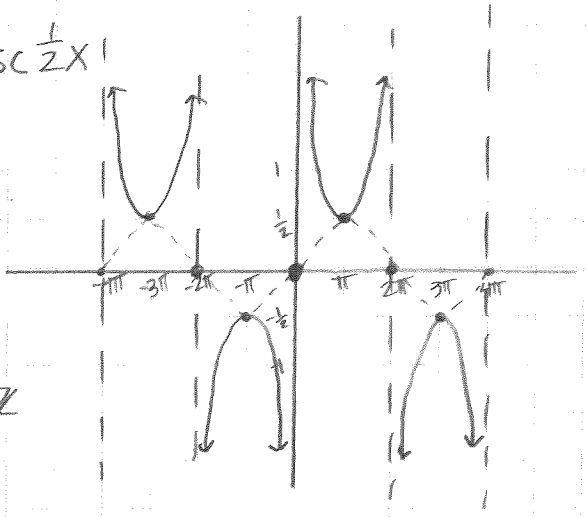
$Inc = \pi$

SP = 0

SA $y = 0$

Asymp Gen.

$x = 2\pi n \quad n \in \mathbb{Z}$



f. $y = -3\sec\frac{1}{3}x + 4$

Amp = 3

$P = 6\pi$

$Inc = \frac{6\pi}{4} = \frac{3\pi}{2}$

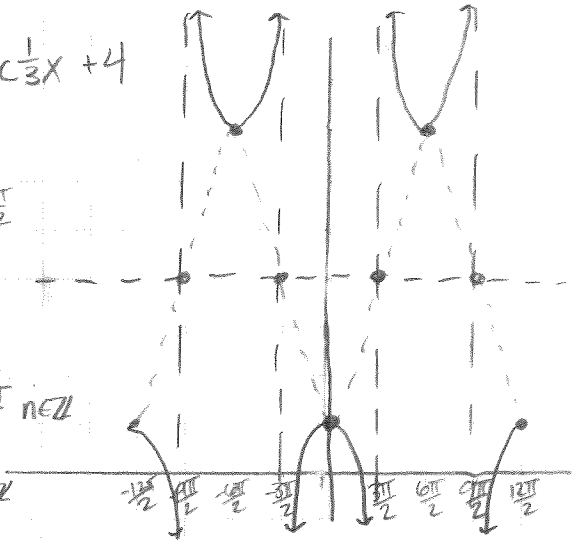
SP = 0

SA $y = 4$

Asymp. Gen

$x = \frac{6\pi}{2}n + \frac{3\pi}{2} \quad n \in \mathbb{Z}$

$= 3\pi n + \frac{3\pi}{2} \quad n \in \mathbb{Z}$



g. $y = -4\csc(4x - \pi) - 2$

Amp = 4

$P = \frac{\pi}{2}$

$Inc = \frac{\pi}{8}$

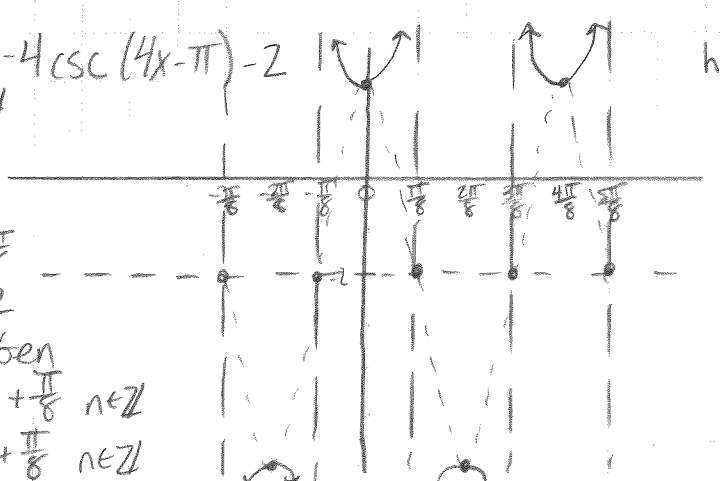
SP = $\frac{\pi}{4} = \frac{2\pi}{8}$

SA $y = -2$

Asymp. Gen

$x = \frac{2\pi}{8}n + \frac{\pi}{8} \quad n \in \mathbb{Z}$

$= \frac{\pi}{4}n + \frac{\pi}{8} \quad n \in \mathbb{Z}$



h. $y = 2\sec\left(\frac{x}{3} - \frac{\pi}{2}\right) + 3$

Amp = 2

$P = 6\pi$

$Inc = \frac{6\pi}{4}$

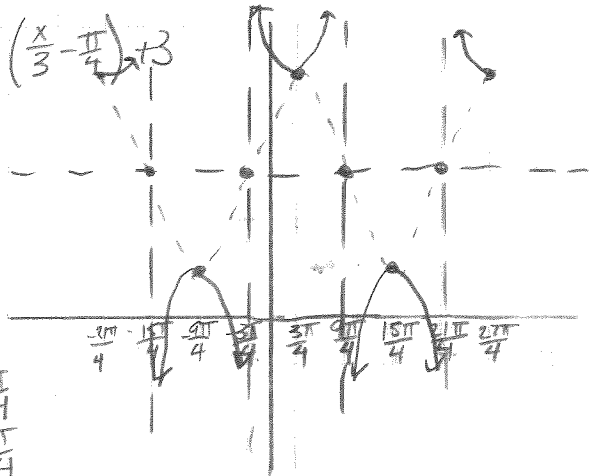
SP = $\frac{3\pi}{4}$

SA $y = 3$

Asymp Gen

$x = 6\pi n + \frac{9\pi}{4}$

or $6\pi n - \frac{3\pi}{4}$



2. a. $y = 2\tan\frac{1}{2}x - 6$

$P = 2\pi$

$Inc = \frac{\pi}{2}$

$SP = 0$

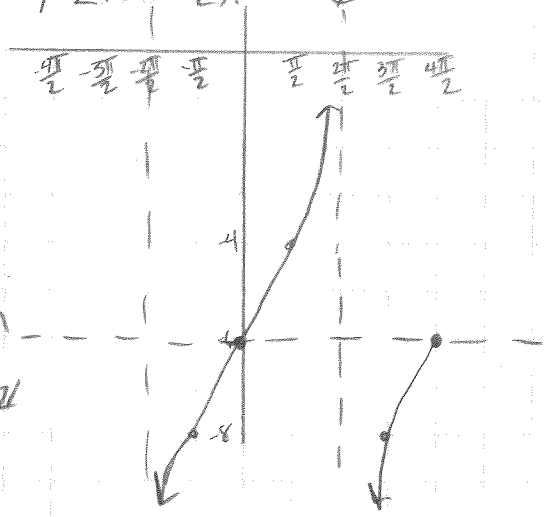
Middle $= -6$

High $= -4$

Low $= -8$

Asymp Gen

$x = 2\pi n + \pi$ $n \in \mathbb{Z}$



b. $y = 3\cot 2x + 3$

$P = \frac{\pi}{2}$

$Inc = \frac{\pi}{8}$

$SP = 0$

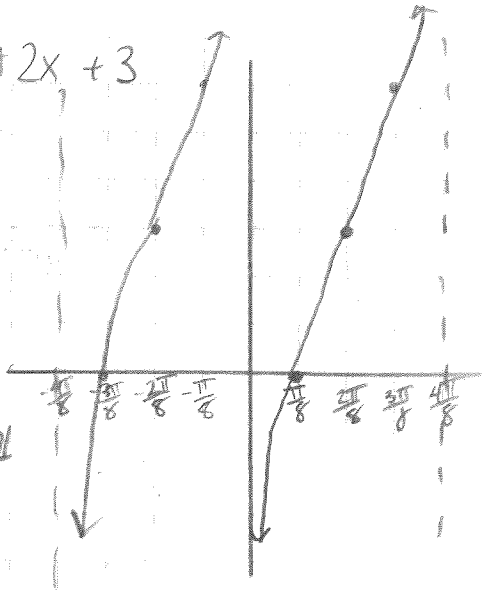
Middle $= 3$

High $= 6$

Low $= 0$

Asymp Gen

$x = \frac{\pi}{2}n$ $n \in \mathbb{Z}$



c. $y = 4\tan(3x - \frac{\pi}{6}) - 1$

$P = \frac{\pi}{3}$

$Inc = \frac{\pi}{12} = \frac{3\pi}{36}$

$SP = \frac{\pi}{18} = \frac{2\pi}{36}$

Middle $= -1$

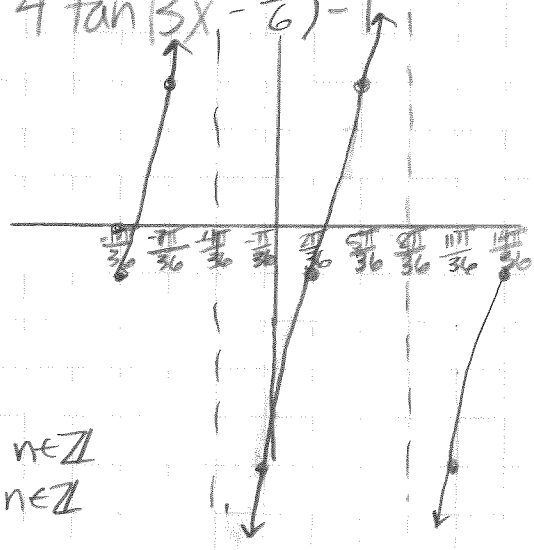
High $= 3$

Low $= -5$

Asymp Gen

$x = \frac{\pi}{3}n + \frac{2\pi}{9}$ $n \in \mathbb{Z}$

or $\frac{\pi}{3}n - \frac{\pi}{9}$ $n \in \mathbb{Z}$



d. $y = \cot\left(\frac{x}{2} - \pi\right)$

$P = 2\pi$

$Inc = \frac{\pi}{2}$

$SP = 2\pi$

Middle $= 0$

High $= 1$

Low $= -1$

$x = 2\pi n$ $n \in \mathbb{Z}$