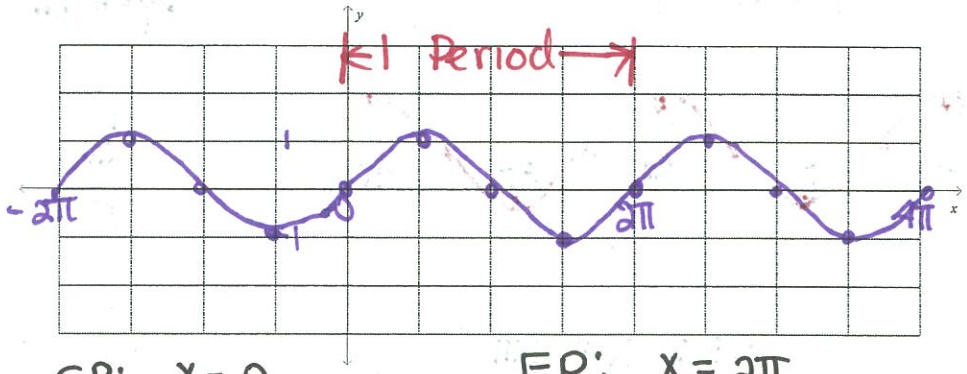
4.4 Trig Graphs WS #1

IMIMI

1. $f(x) = \sin x$ $a=1$ $b=1$ $c=0$ $d=0$



SP: $x = 0$ EP: $x = 2\pi$

$|a| = 1$

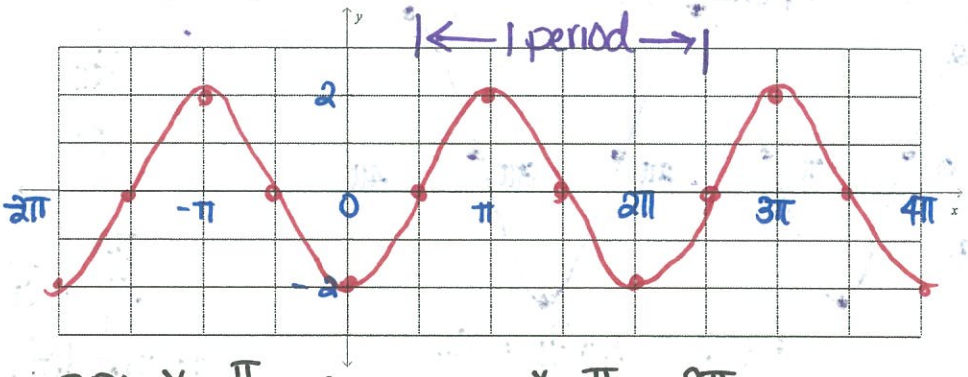
Period = $\frac{2\pi}{1} = 2\pi$

Frequency = $\frac{1}{2\pi}$

Vertical Shift: 0

Phase shift: 0

2. $f(x) = 2\sin\left(x - \frac{\pi}{2}\right)$ $a=2$ $b=1$ $c=\frac{-\pi}{2}$ $d=0$



SP: $x - \frac{\pi}{2} = 0$ $x = \frac{\pi}{2}$

$x - \frac{\pi}{2} = 2\pi$ $x = \frac{5\pi}{2}$

$|a| = 2$

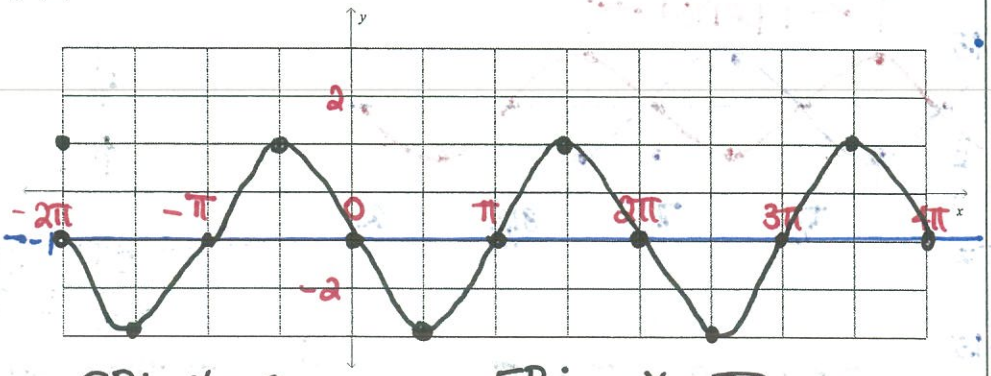
Period = $\frac{2\pi}{1} = 2\pi$

Frequency = $\frac{1}{2\pi}$

Vertical Shift: 0

Phase shift: $\frac{-\frac{\pi}{2}}{1} = -\frac{\pi}{2}$ to the right

3. $f(x) = -2\sin x - 1$ $a=-2$ $b=1$ $c=0$ $d=-1$



SP: $x = 0$ EP: $x = 2\pi$

$|a| = 2$

Period = $\frac{2\pi}{1} = 2\pi$

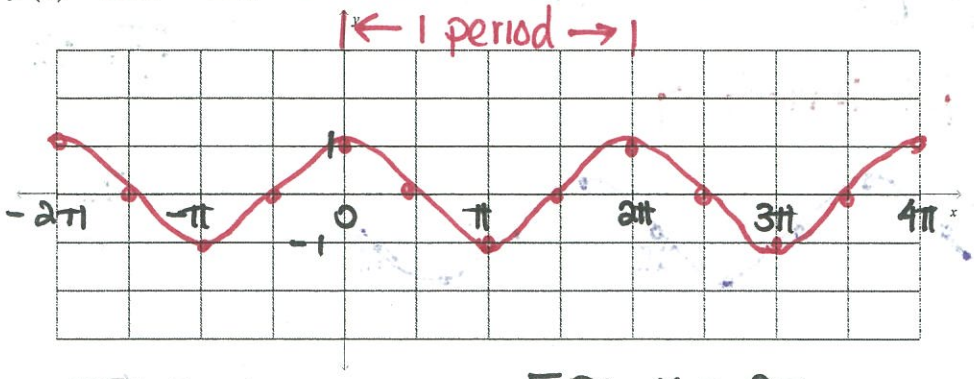
Frequency = $\frac{1}{2\pi}$

Vertical Shift: ↓ 1

Phase shift: 0

Max, Int, Min, Int, Max

4. $f(x)=\cos x$ $a=1$ $b=1$ $c=0$ $d=0$



SP: $x=0$ EP: $x=2\pi$

$|a| = 1$

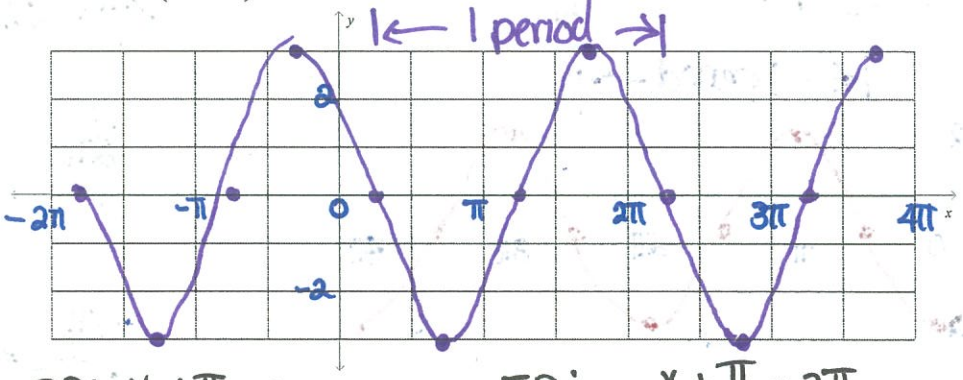
Period = $\frac{2\pi}{1}=2\pi$

Frequency = $\frac{1}{2\pi}$

Vertical Shift: 0

Phase shift: 0

5. $f(x)=3\cos\left(x+\frac{\pi}{4}\right)$ $a=3$ $b=1$ $c=\frac{\pi}{4}$ $d=0$



SP: $x+\frac{\pi}{4}=0$ $x=-\frac{\pi}{4}$

EP: $x+\frac{\pi}{4}=2\pi$ $x=\frac{7\pi}{4}$

$|a| = 3$

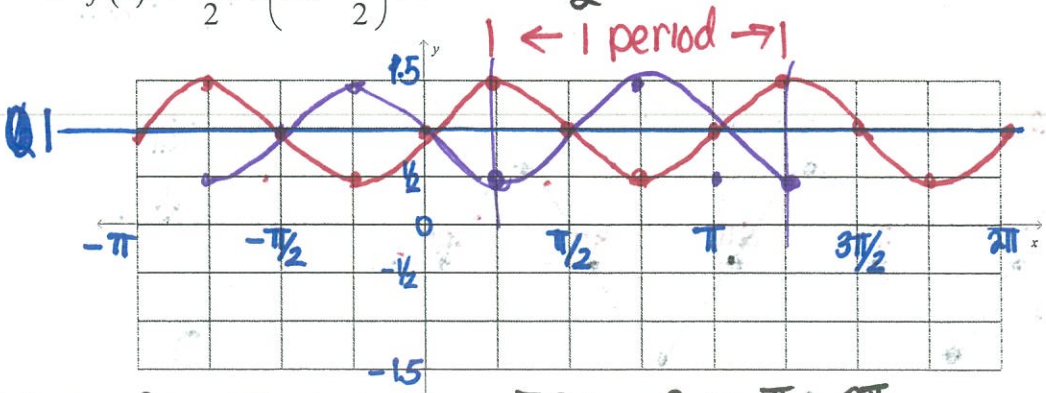
Period = $\frac{2\pi}{1}=2\pi$

Frequency = $\frac{1}{2\pi}$

Vertical Shift: 0

Phase shift: $\frac{\frac{\pi}{4}}{1}=\frac{\pi}{4}$ to the left

6. $f(x)=-\frac{1}{2}\cos\left(2x-\frac{\pi}{2}\right)+1$ $a=-\frac{1}{2}$ $b=2$ $c=\frac{-\pi}{2}$ $d=1$



SP: $2x-\frac{\pi}{2}=0$ $2x=\frac{\pi}{2}$ $x=\pi/4$

EP: $2x-\frac{\pi}{2}=2\pi$ $2x=\frac{5\pi}{2}$ $x=\frac{5\pi}{4}$

$|a| = \frac{1}{2}$

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

Frequency = $\frac{1}{\pi}$

Vertical Shift: ↑ 1

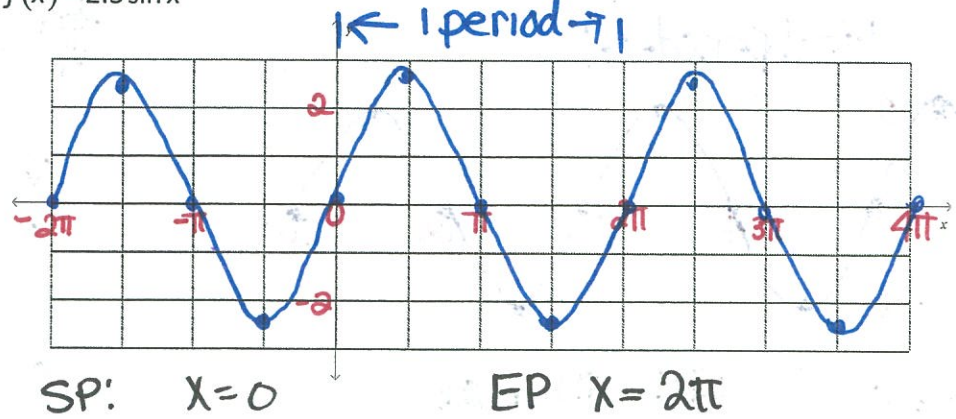
Phase shift: $\frac{\frac{-\pi}{2}}{2}=\frac{-\pi}{4}$

$\frac{\pi}{4}$ (to the right)

4.4 Trig Graph WS #2

1. $f(x)=2.5\sin x$ (1 M 1 M 1)

$a=2.5 \quad b=1 \quad c=0 \quad d=0$



SP: $x=0$ EP $x=2\pi$

$|a| = 2.5$

Period = $\frac{2\pi}{1} = 2\pi$

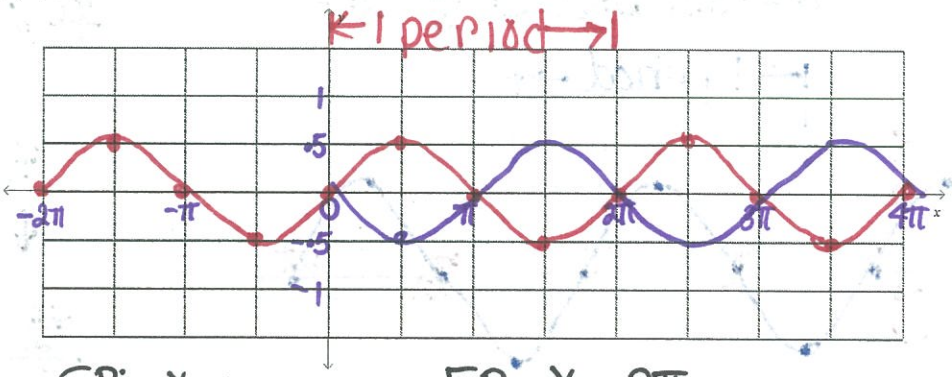
Frequency = $\frac{1}{2\pi}$

Vertical Shift: 0

Phase shift: 0

2. $f(x)=-0.5\sin x$

$a=-0.5 \quad b=1 \quad c=0 \quad d=0$



SP: $x=0$ EP $x=2\pi$

$|a| = 0.5$

Period = $\frac{2\pi}{1} = 2\pi$

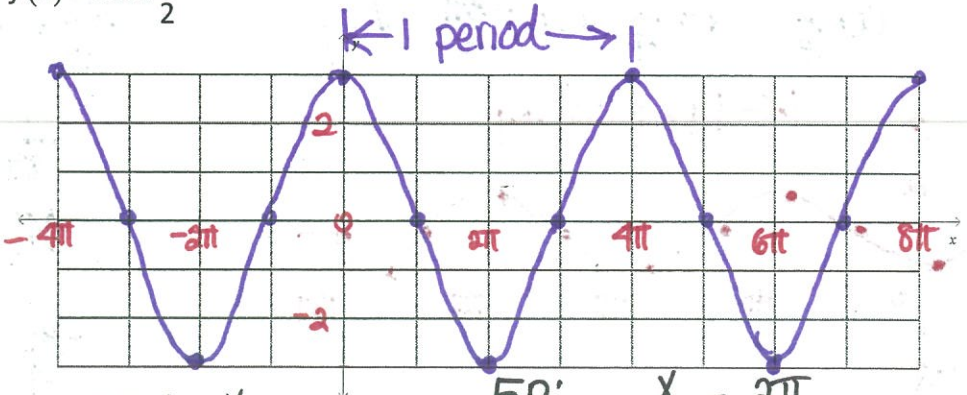
Frequency = $\frac{1}{2\pi}$

Vertical Shift: 0

Phase shift: 0

3. $f(x)=3\cos\frac{x}{2}$

$a=3 \quad b=\frac{1}{2} \quad c=0 \quad d=0$



SP: $\frac{x}{2}=0$, $x=0$ EP: $\frac{x}{2}=2\pi$, $x=4\pi$

$|a| = 3$

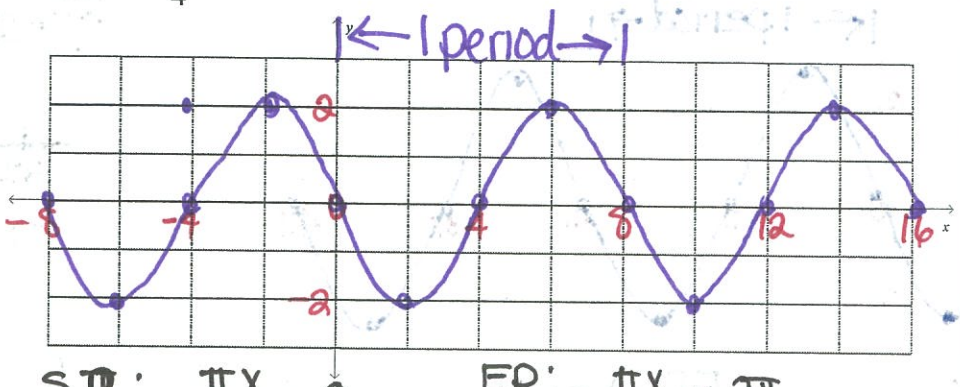
Period = $\frac{2\pi}{\frac{1}{2}} = 4\pi$

Frequency = $\frac{1}{4\pi}$

Vertical Shift: 0

Phase shift: 0

4. $f(x)=-2\sin\frac{\pi x}{4}$ $a=-2$ $b=\frac{\pi}{4}$ $c=0$ $d=0$



SP: $\frac{\pi x}{4}=0$ $x=0$

EP: $\frac{\pi x}{4}=2\pi$ $x=8$

$|a|=2$

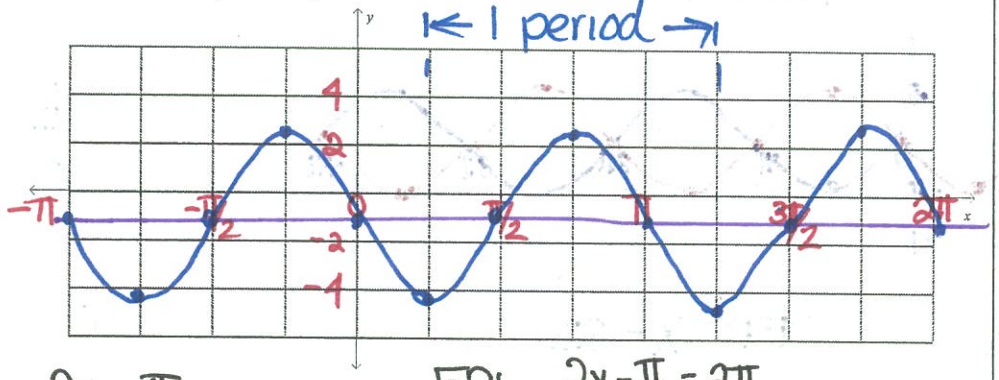
Period = $\frac{2\pi}{\frac{\pi}{4}}=8$

Frequency = $\frac{1}{8}$

Vertical Shift: 0

Phase shift: 0

5. $f(x)=-3.5\cos\left(2x-\frac{\pi}{2}\right)-1$ $a=-3.5$ $b=2$ $c=\frac{-\pi}{2}$ $d=-1$



SP: $2x-\frac{\pi}{2}=0$

$2x-\frac{\pi}{2}=0$

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

$x=\pi/4$

EP: $2x-\frac{\pi}{2}=2\pi$

$2x=\frac{5\pi}{2}$

$x=\frac{5\pi}{4}$

$|a|=3.5$

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

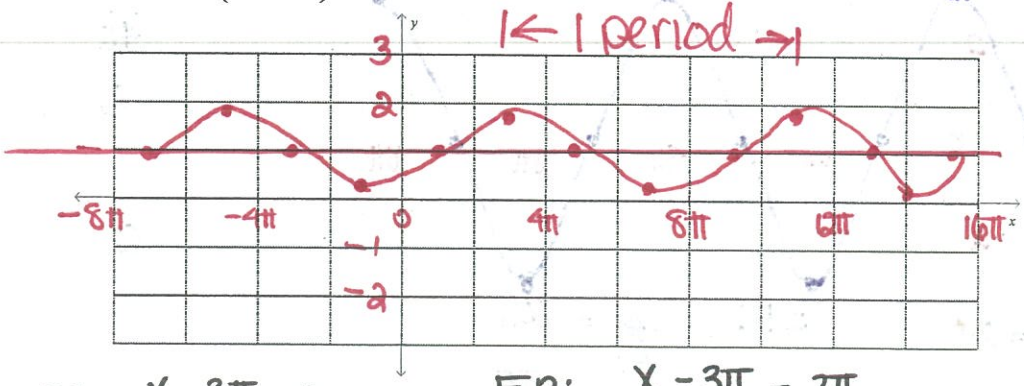
Frequency = $\frac{1}{\pi}$

Vertical Shift: ↓1

Phase shift: $\frac{\frac{-\pi}{2}}{2}=\frac{-\pi}{4}$

$\pi/4$ to the right

6. $f(x)=\frac{2}{3}\cos\left(\frac{x-3\pi}{4}\right)+1$ $a=\frac{2}{3}$ $b=\frac{1}{4}$ $c=\frac{-3\pi}{4}$ $d=1$



SP: $\frac{x-3\pi}{4}=0$ $x=3\pi$

EP: $\frac{x-3\pi}{4}=2\pi$ $x=\frac{11\pi}{1}$

$|a|=2/3$

Period = $\frac{2\pi}{\frac{1}{4}}=8\pi$

Frequency = $\frac{1}{8\pi}$

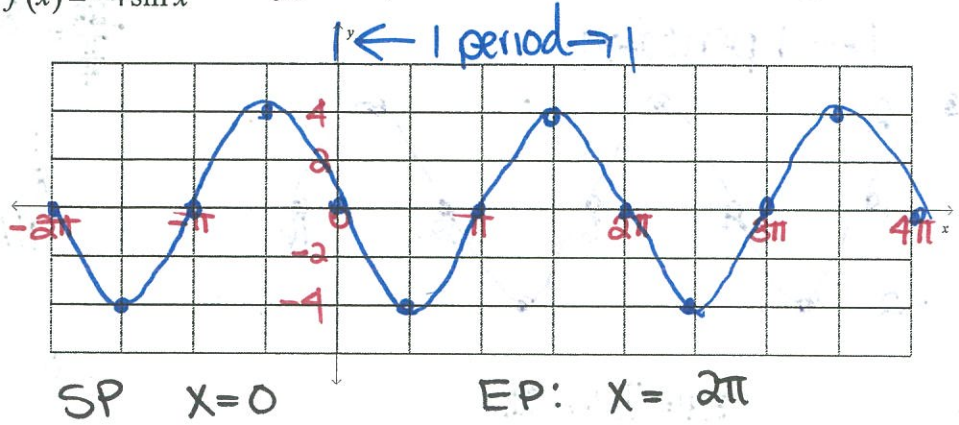
Vertical Shift: ↑1

Phase shift: $\frac{\frac{-3\pi}{4}}{\frac{1}{4}}=-3\pi$

3π to the right

Trig Graphs WS #3

1. $f(x) = -4\sin x$ $a=-4$ $b=1$ $c=0$ $d=0$



SP $x=0$ EP: $x=2\pi$

$|a| = 4$

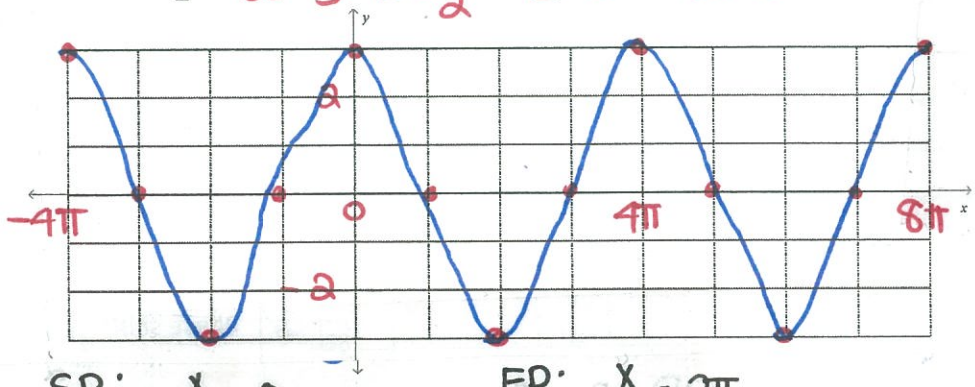
Period = $\frac{2\pi}{1} = 2\pi$

Frequency = $\frac{1}{2\pi}$

Vertical Shift: 0

Phase shift: 0

2. $f(x) = 3\cos\frac{x}{2}$ $a=3$ $b=\frac{1}{2}$ $c=0$ $d=0$



SP: $\frac{x}{2}=0$ $x=0$

EP: $\frac{x}{2}=2\pi$ $x=4\pi$

$|a| = 3$

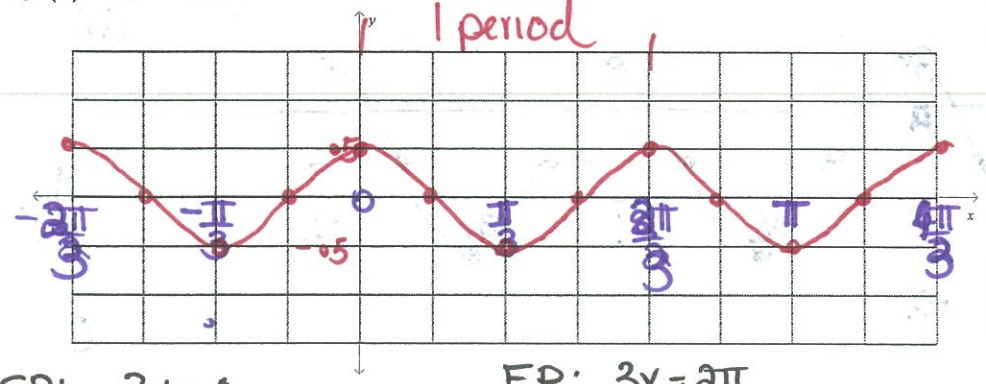
Period = $\frac{2\pi}{\frac{1}{2}} = 4\pi$

Frequency = $\frac{1}{4\pi}$

Vertical Shift: 0

Phase shift: 0

3. $f(x) = 0.5\cos 3x$ $a=0.5$ $b=3$ $c=0$ $d=0$



SP: $3x=0$ $x=0$

EP: $3x=2\pi$ $x=\frac{2\pi}{3}$

$|a| = 0.5$

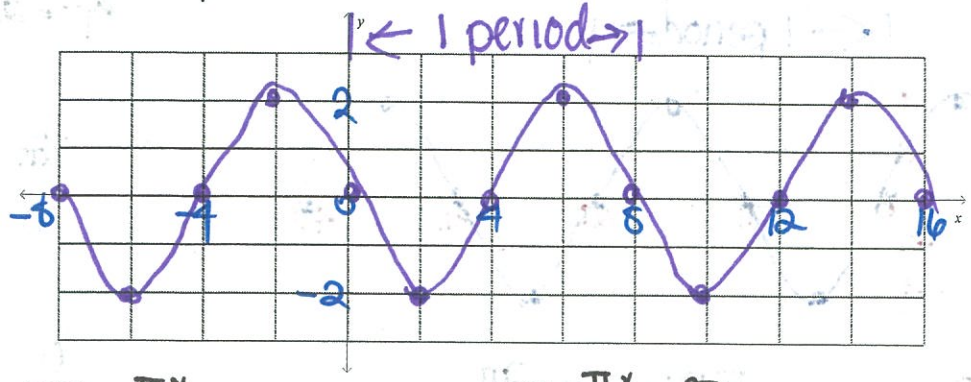
Period = $\frac{2\pi}{3}$

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

Vertical Shift: 0

Phase shift: 0

4. $f(x) = -2\sin\frac{\pi x}{4}$ $a=-2$ $b=\frac{\pi}{4}$ $c=0$ $d=0$



SP: $\frac{\pi x}{4}=0$, $x=0$ EP: $\frac{\pi x}{4}=2\pi$, $x=8$

$|a| = 2$

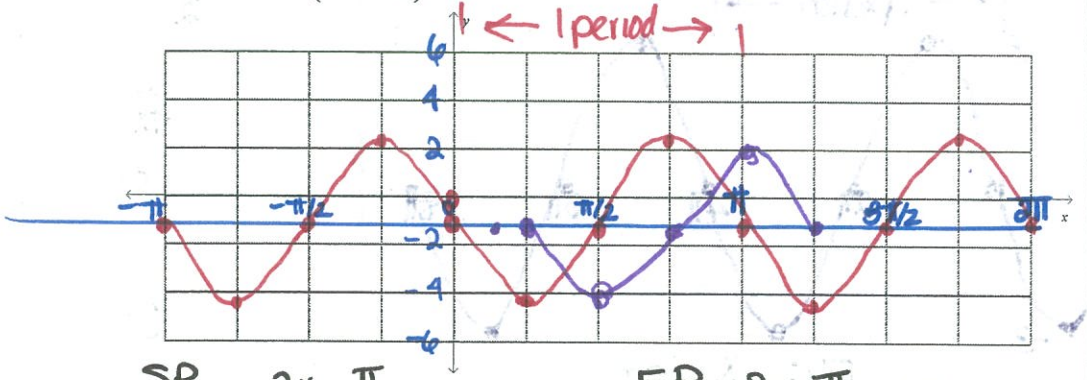
Period = $\frac{2\pi}{\frac{\pi}{4}} = 8$

Frequency = $\frac{1}{8}$

Vertical Shift: NA

Phase shift: 0

5: $f(x) = -3.5\sin\left(2x-\frac{\pi}{2}\right)-1$ $a=-3.5$ $b=2$ $c=\frac{-\pi}{2}$ $d=-1$



SP: $2x-\frac{\pi}{2}=0$ EP: $2x-\frac{\pi}{2}=2\pi$

$|a| = 3.5$

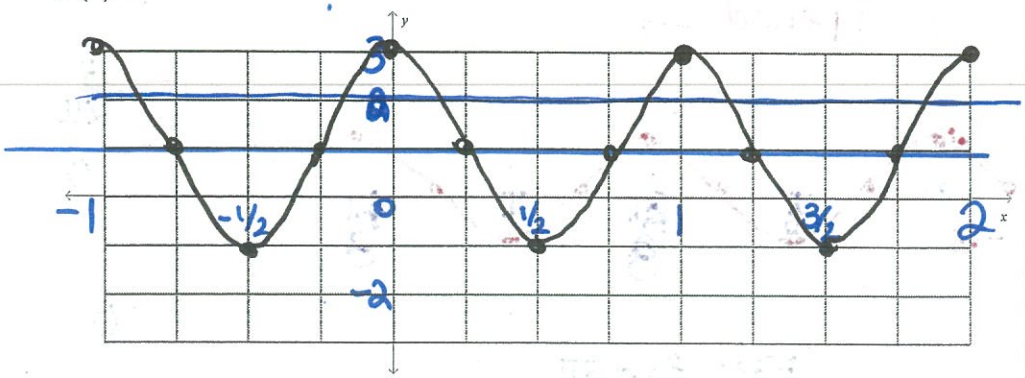
Period = $\frac{2\pi}{2}=\pi$

Frequency = $\frac{1}{\pi}$

Vertical Shift: ↓ 1

Phase shift: $\frac{\frac{-\pi}{2}}{2}=\frac{-\pi}{4}$

6. $f(x) = 2\cos 2\pi x + 1$ $a=2$ $b=2\pi$ $c=0$ $d=1$



$|a| = 2$

Period = $\frac{2\pi}{2\pi} = 1$

Frequency = 1

Vertical Shift: ↑ 1

Phase shift: 0