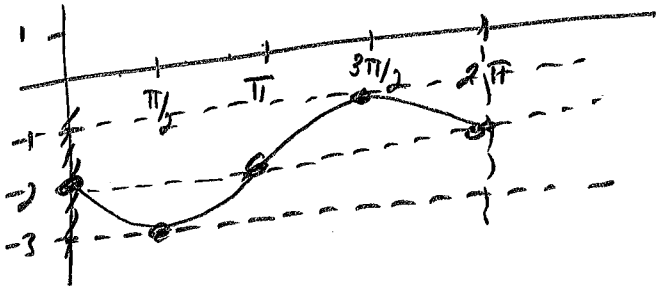
① $f(x) = -\sin(x) - 2$

- Basic Shape: ∩
- Amplitude: $|-1| = 1$
- shift: down 2
- Standard Interval: $0 \le x < 2\pi$



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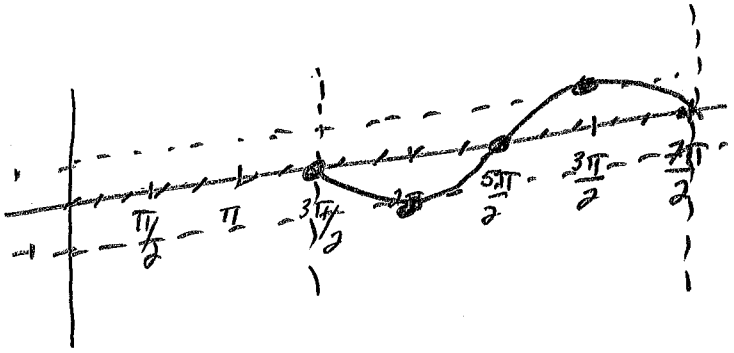
② $f(x) = \sin\left(x - \frac{3\pi}{2}\right)$

- Basic Shape: ∩
- Amplitude: $|1| = 1$
- shift: RIGHT: $3\pi/2$
- Standard Interval:

$$0 \le x - \frac{3\pi}{2} < 2\pi \rightarrow \frac{4\pi}{2} + \frac{3\pi}{2}$$

$$+\frac{3\pi}{2} \quad +\frac{3\pi}{2} \quad +\frac{3\pi}{2} \qquad \frac{7\pi}{2}$$

$$\frac{3\pi}{2} \le x < \frac{7\pi}{2}$$



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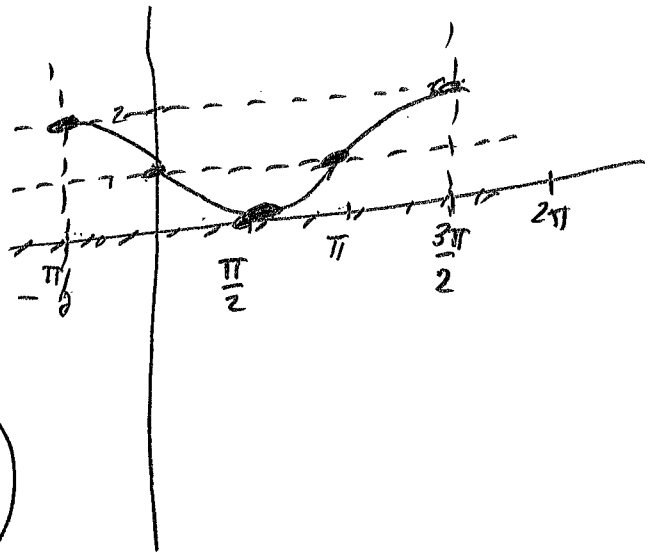
③ $f(x) = \cos\left(x + \frac{\pi}{2}\right) + 1$

- Basic Shape: ∩
- Amplitude: $|1| = 1$
- shift: left $\pi/2$
- standard Interval:

$$0 \le x + \frac{\pi}{2} < 2\pi \rightarrow 2\pi - \frac{\pi}{2}$$

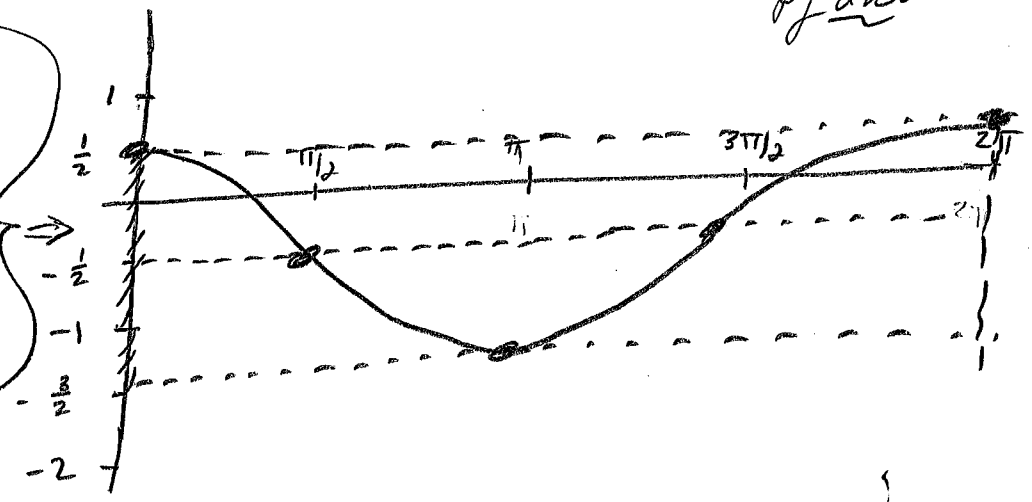
$$-\frac{\pi}{2} \quad -\frac{\pi}{2} \quad -\frac{\pi}{2} \Rightarrow \frac{4\pi}{2} - \frac{\pi}{2}$$

$$-\frac{\pi}{2} \le x < \frac{3\pi}{2} \Rightarrow \frac{3\pi}{2}$$



④. $f(x) = \cos(x) - \frac{1}{2}$

- ✱ Basic Shape: ∩
- ✱ Amplitude: $|1| = 1$
- ✱ shift: Down $\frac{1}{2}$
- ✱ Standard Interval: $0 \le x < 2\pi$



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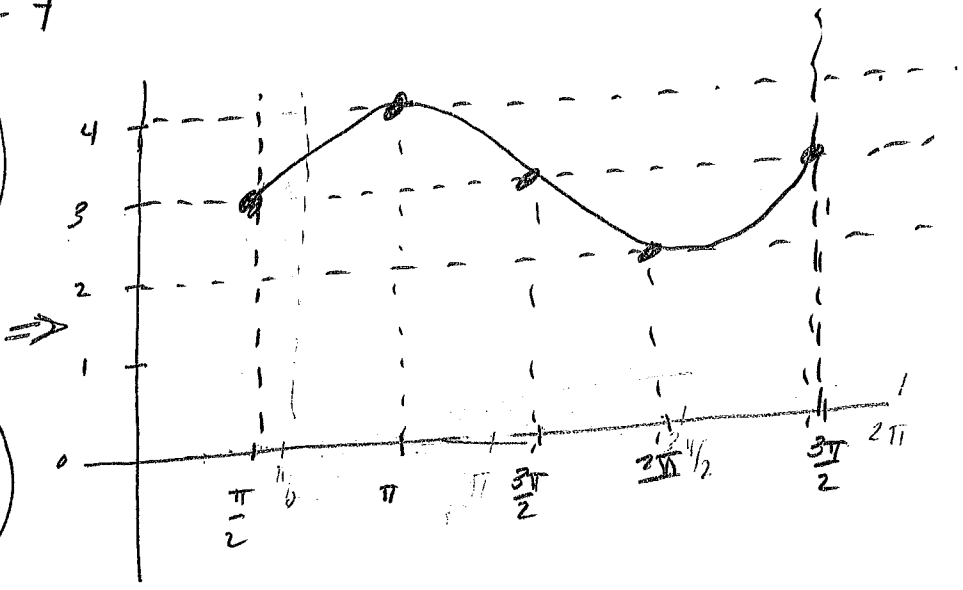
⑤. $f(x) = \sin\left(x - \frac{\pi}{2}\right) + 3$

- ✱ basic Shape: ∩
- ✱ Amplitude: $|1| = 1$
- ✱ shift: up 3
- ✱ Standard Interval:

$0 \le x - \frac{\pi}{2} < 2\pi$

$+\frac{\pi}{2} \quad +\frac{\pi}{2} \quad +\frac{\pi}{2}$

$\frac{\pi}{2} \le x < \frac{5\pi}{2}$



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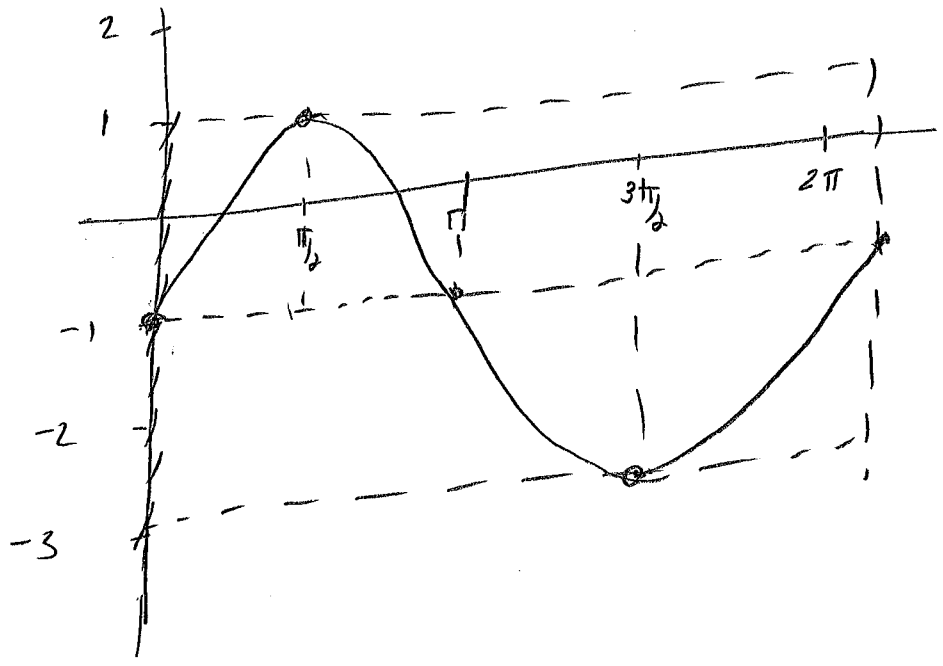
⑥. $f(x) = 2\sin(x) - 1$

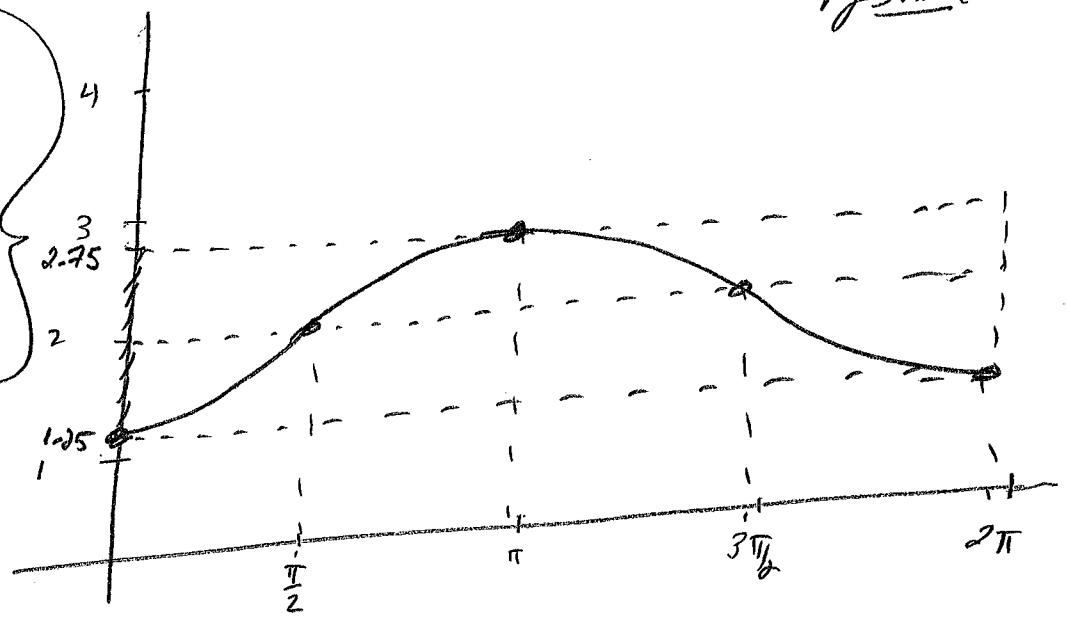
- ✱ basic shape: ∩
- ✱ Amplitude: $|2| = 2$
- ✱ shift: Down 1
- ✱ Standard Interval:

$0 \le x < 2\pi$



⑦ $f(x) = -\frac{3}{4}\cos(x) + 2$

- ✱ Basic Shape: ~~$\wedge$~~ ✓
- ✱ Amplitude: $|-\frac{3}{4}| = \frac{3}{4}$ ✓
- ✱ shift: up 2 ✓
- ✱ standard Interval: $0 \le x < 2\pi$ ✓



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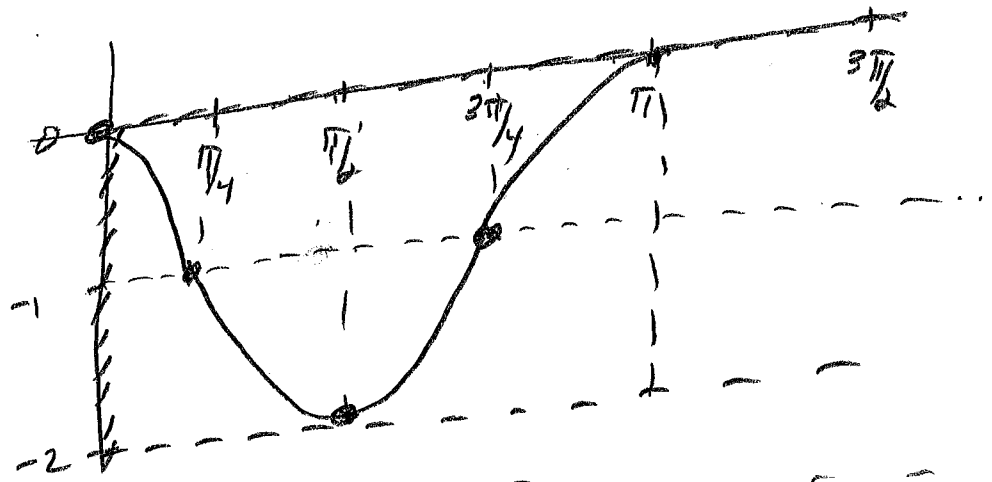
⑧ $f(x) = \cos(2x) - 1$

- ✱ Basic Shape: ~~$\wedge$~~ ✓
- ✱ Amplitude: $|1| = 1$ ✓
- ✱ shift: Down 1 ✓
- ✱ Standard Interval:

$$\frac{0}{2} \le \frac{2x}{2} < \frac{2\pi}{2}$$

$$\Rightarrow 0 \le x < \pi$$



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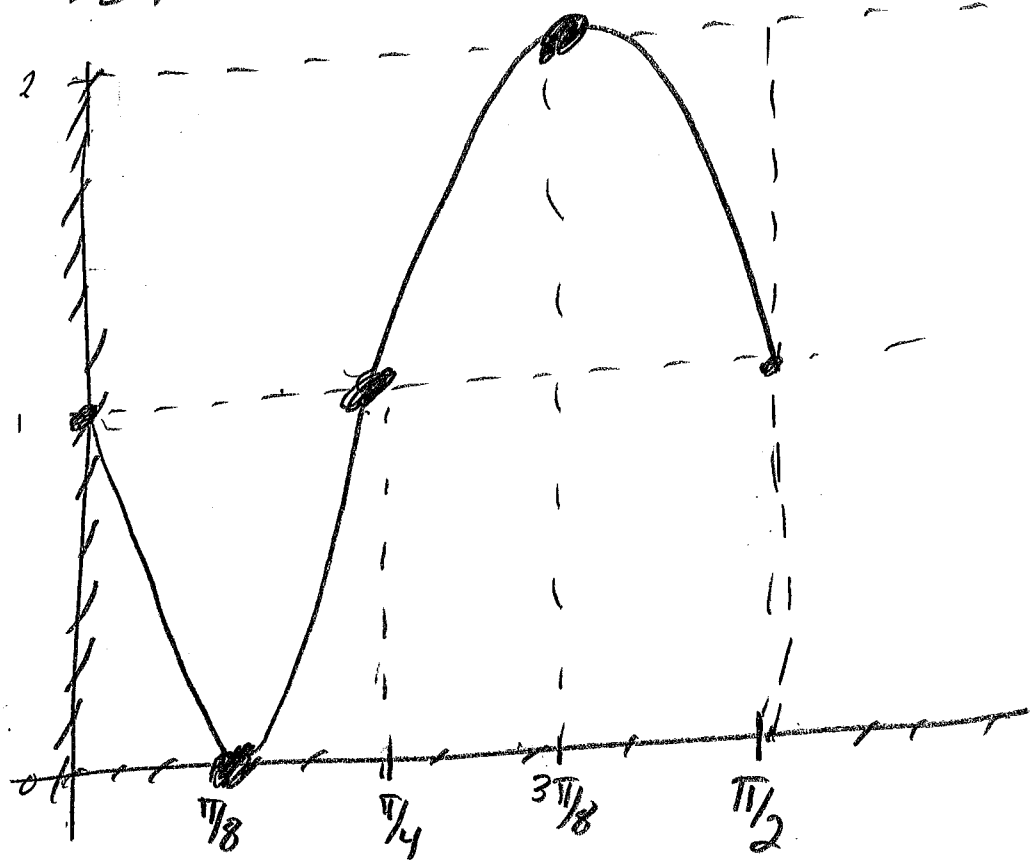
⑨ $f(x) = -\sin(4x) + 1$

- ✱ Basic Shape ~~$\sim$~~ ✓
- ✱ Amplitude: $|-1| = 1$ ✓
- ✱ shift: Up 1 ✓
- ✱ Standard Interval:

$$\frac{0}{4} \le \frac{4x}{4} < \frac{2\pi}{4}$$

$$\Rightarrow 0 \le x < \pi/2$$ ✓

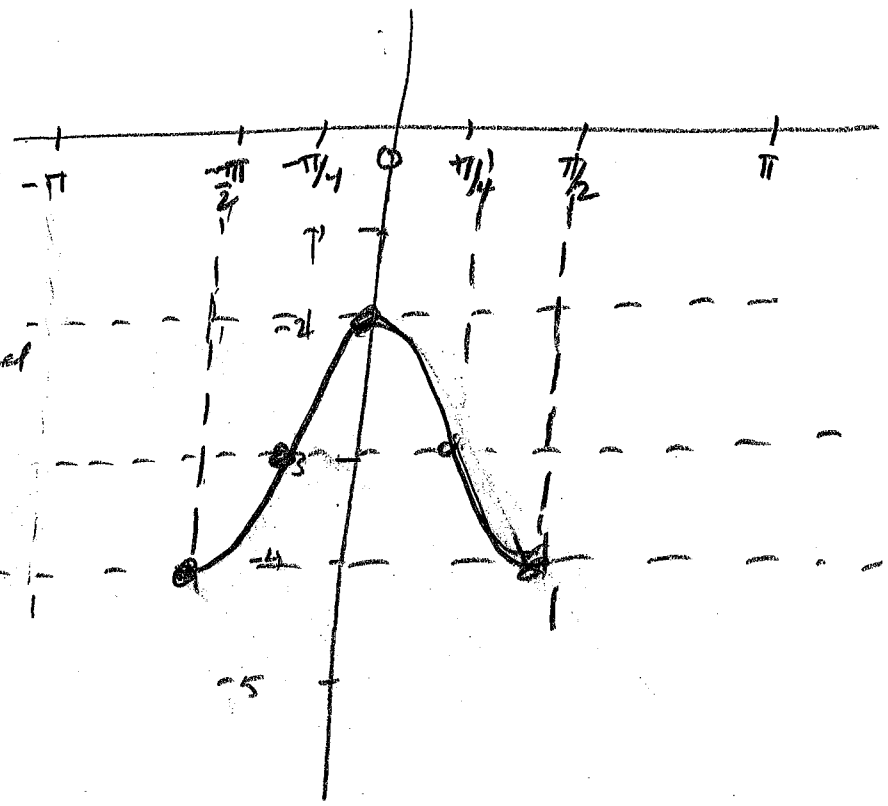


(10) $f(x) = -\cos(2x - \pi) - 3$

* Basic Shape: ~~+~~ ←
* Amplitude: $|-1| = 1$ ←
* shift: $(2x - \pi)$
  must factor out "2"
  $\Rightarrow 2(x - \frac{\pi}{2}) - 3$
  LR: shift: Right $\pi/2$ ←
  Down 3 ←
* Standard Interval:

$$0 \leq 2x - \pi < 2\pi$$
$$+\pi \quad +\pi \quad +\pi$$
$$\frac{\pi}{2} \leq \frac{2x}{2} < \frac{\pi}{2}$$
$$\Rightarrow \pi/2 \leq x < \pi/2 \leftarrow$$

Use the original here



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(11) $f(x) = 3\sin(4x - \pi/2)$

I don't know what possessed me to use this function but there it is.

Basic Shape: ~~+~~ ←

* Amplitude: $|3| = 3$ ←
* shift: $(4x - \pi/2)$ must factor out "4"
  $= 4(x - \frac{\pi}{8})$
  shift: Right $\pi/8$ ←
* Standard Interval:

$$0 \leq 4x - \pi/2 < 2\pi$$
$$+\pi/2 \quad +\pi/2 \quad +\pi/2$$
$$\Rightarrow \pi/2 \leq 4x < 5\pi/2$$
$$\Rightarrow \frac{1}{4}(\frac{\pi}{2} \leq 4x < 5\pi/2)$$
$$\Rightarrow \pi/8 \leq x < 5\pi/8$$