Trig Sec 3-3 p. 165 (3-15) m3, 17-20

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

$x + \frac{\pi}{2} = 0$ $\quad x + \frac{\pi}{2} = 2\pi$

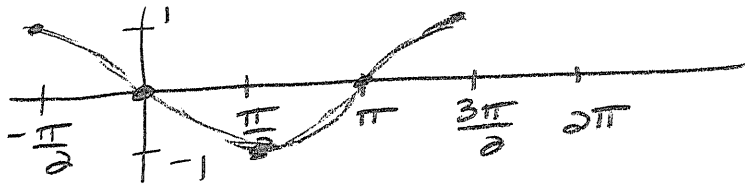
$x = -\frac{\pi}{2}$ $\quad x = \frac{3\pi}{2}$

Start $\quad$ End

Amp = 1

Period = 2π

P.S. = $-\frac{\pi}{2}$



(6) $y = \cos\left(x + \frac{\pi}{4}\right)$ $\quad -\pi \le x \le 2\pi$

$x + \frac{\pi}{4} = 0$ $\quad x + \frac{\pi}{4} = 2\pi$

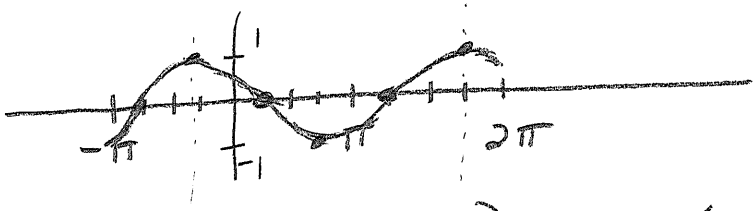
$x = -\frac{\pi}{4}$ $\quad x = 1\frac{3}{4}\pi$ or $\frac{7\pi}{4}$

Start $\quad$ End

Amp = 1

Period = 2π

P.S. = $-\frac{\pi}{4}$



(9) $y = -2\cos(2x + \pi)$ $\quad -\pi \le x \le 3\pi$

$2x + \pi = 0$

$-\pi \quad -\pi$

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

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

Start

$2x + \pi = 2\pi$

$-\pi \quad -\pi$

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

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

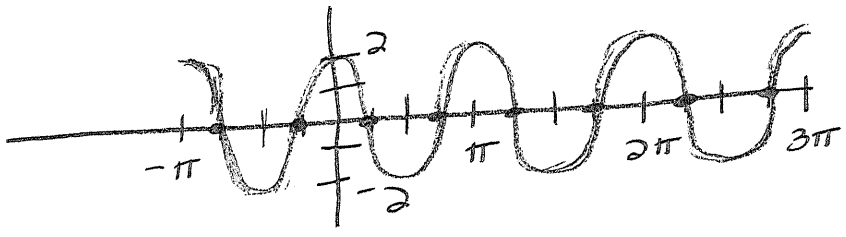
End

Amp = 2

☆ FLIP ☆

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

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



(12) $y = \sin\left(x + \frac{\pi}{2}\right)$ $\quad y = \cos x$

$x + \frac{\pi}{2} = 0$ $\quad x + \frac{\pi}{2} = 2\pi$

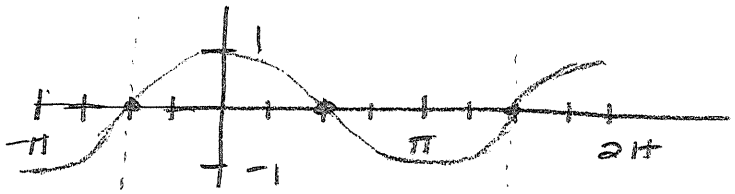
$-\frac{\pi}{2} \quad -\frac{\pi}{2}$ $\quad x = \frac{3\pi}{2}$

$x = -\frac{\pi}{2}$ $\quad$ End

Start

★ They produce SAME Graph. ★

Amp = 1 $\quad$ Period = 2π $\quad$ P.S. = $-\frac{\pi}{2}$



(15) $y = 3 - 2\cos(2x + \pi)$ $\quad -\pi \le x \le 3\pi$

↑ 3 $\quad$ Amp = 2 $\quad$ ★ FLIP ★ $\quad$ Period = $\frac{2\pi}{2} = \pi$

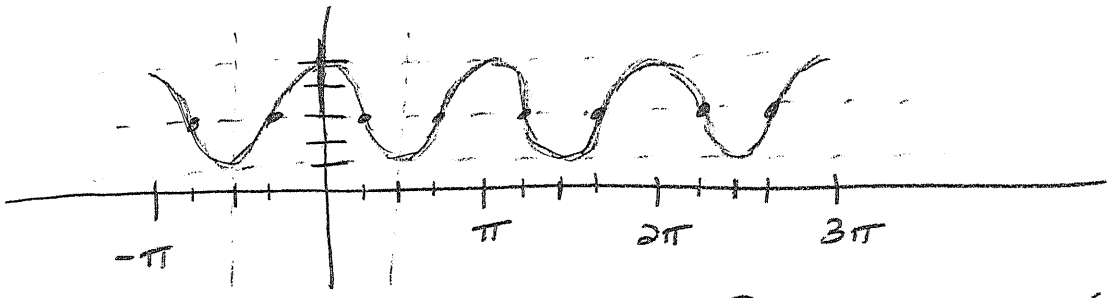
$2x + \pi = 0$ $\quad 2x + \pi = 2\pi$

$-\pi \quad -\pi$ $\quad -\pi \quad -\pi$

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

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

Start $\quad$ End



(17) $y = 2\sin(\pi x - \frac{\pi}{2})$ [B]

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

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

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

$x = \frac{1}{2}$ $\quad x = \frac{5}{2}$

Start

P.S. = $\frac{1}{2}$

(18) $y = 2\cos(\pi x + \frac{\pi}{2})$ [C]

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

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

$\frac{\pi x}{\pi} = \frac{-\frac{\pi}{2}}{\pi}$ $\quad +\frac{\pi}{2} \quad +\frac{\pi}{2}$

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

$x = -\frac{1}{2}$ $\quad x = \frac{5}{2}$

Start $\quad$ End

P.S. = $-\frac{1}{2}$

(19) $y = 2\cos\left(2x + \frac{\pi}{2}\right)$ **A**

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

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

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

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

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

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

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

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

(20) $y = 2\sin\left(2x - \frac{\pi}{2}\right)$ **D**

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

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

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

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

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

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

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