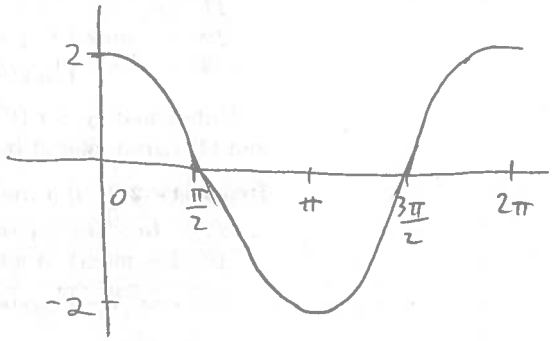
Homework 7 Spring 2020

§8.1

#10 $y = 2\cos(x)$ ← v. stretch / multiply y by 2

Anchor points: $0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}, 2\pi$

y-values: $1, 0, -1$ → mult. 2 → $2, 0, -2$



#19 $y = -\cos(t + \frac{\pi}{3})$

(1st) h-shift left subtr. $\frac{\pi}{3}$ from anchor pts

(2nd) mult. y-values by (-1) (flip graph upside-down)

Anchor pts $0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}, 2\pi$ ↓ subtr. $\frac{\pi}{3}$

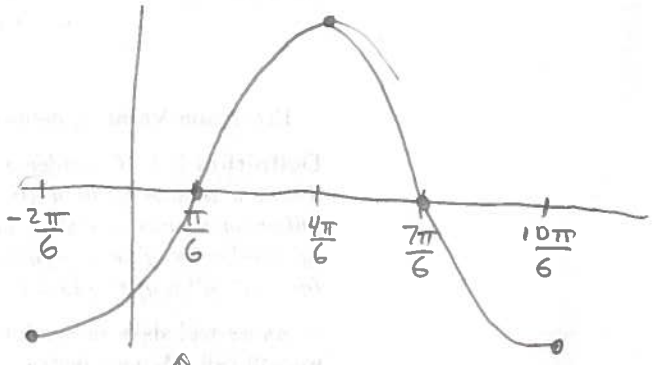
$\frac{\pi}{2} - \frac{\pi}{3} = \frac{3\pi}{6} - \frac{2\pi}{6} = \frac{\pi}{6}$

$\frac{3\pi}{2} - \frac{\pi}{3} = \frac{9\pi}{6} - \frac{2\pi}{6} = \frac{7\pi}{6}$

$2\pi - \frac{\pi}{3} = \frac{6\pi}{3} - \frac{\pi}{3} = \frac{5\pi}{3}$

$-\frac{\pi}{3}, \frac{\pi}{6}, \frac{2\pi}{3}, \frac{7\pi}{6}, \frac{5\pi}{3} = \frac{10\pi}{6}$

$\frac{-2\pi}{6}$ = $\frac{4\pi}{6}$ = $\frac{10\pi}{6}$



Upside-down b/c of negative sign!!

#22 $y = 4\sin\left(\frac{\pi}{2}(x-3)\right)+7$

- mult. y-vals by 4 (3rd)
- divide x-vals by $\pi/2$ (1st)
- add 3 to x-vals (2nd)
- add 7 to y-vals (4th)

Soln: Anchor points: $0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}, 2\pi$.

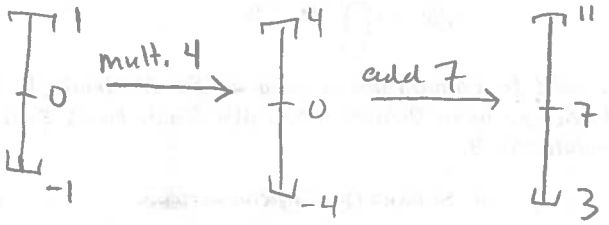
↓ div by $\frac{\pi}{2}$

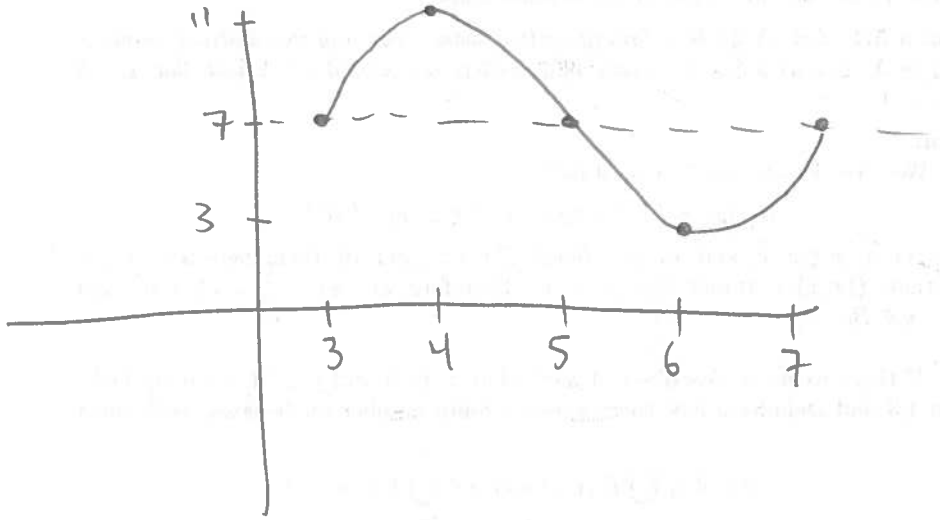
$0, \frac{\pi/2}{\pi/2}=1, \frac{\pi}{\pi/2}=\frac{2\pi}{\pi}=2, 3, 4.$

↓ add 3

$3, 4, 5, 6, 7$

Y-values:





§8.2

#22] Sketch $j(x) = \tan\left(\frac{\pi}{2}x\right)$

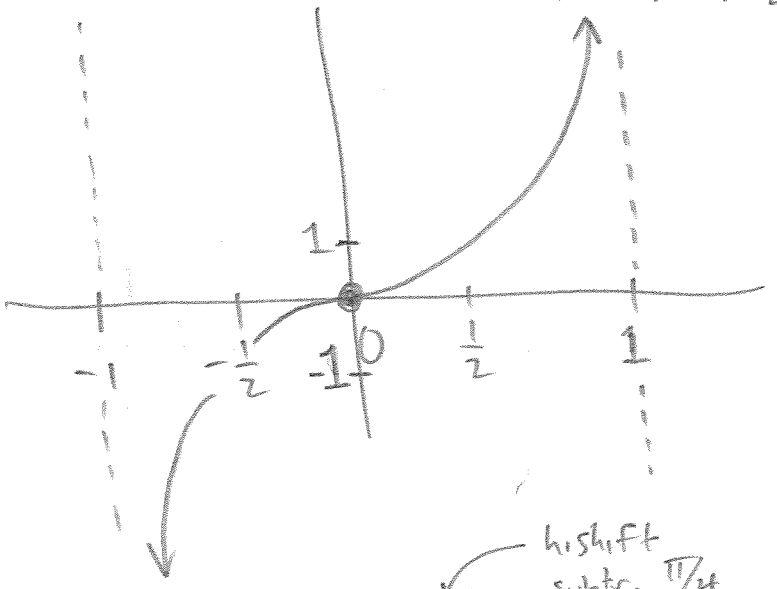
h. comp div by $\frac{\pi}{2}$

$\frac{\pi/4}{\pi/2} = \frac{\pi}{4} \cdot \frac{2}{\pi} = \frac{2}{4} = \frac{1}{2}$

Soln: Anchor pts: $-\frac{\pi}{2}, -\frac{\pi}{4}, 0, \frac{\pi}{4}, \frac{\pi}{2}$

↓ div by $\frac{\pi}{2}$

$-1, -\frac{1}{2}, 0, \frac{1}{2}, 1$



#25] Sketch $f(x) = \tan\left(x + \frac{\pi}{4}\right)$

h. shift subtr. $\pi/4$

Soln: Anchor pts: $-\frac{\pi}{2}, -\frac{\pi}{4}, 0, \frac{\pi}{4}, \frac{\pi}{2}$

↓ subtr $\pi/4$

$-\frac{3\pi}{4}, -\frac{\pi}{2}, -\frac{\pi}{4}, 0, \frac{\pi}{4}$