AAT (IC/HW)-Days 1 & 2

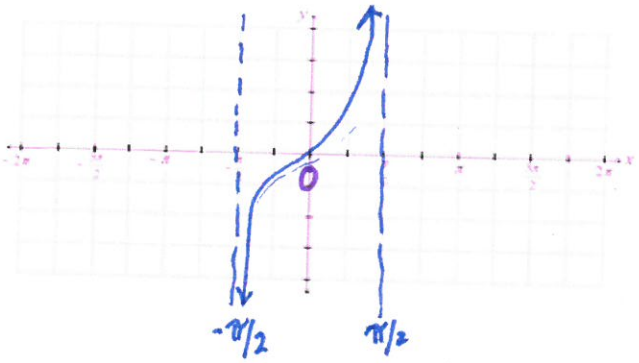
Chapter 6: 6-6 Additional Trigonometric Graphs

Name Key

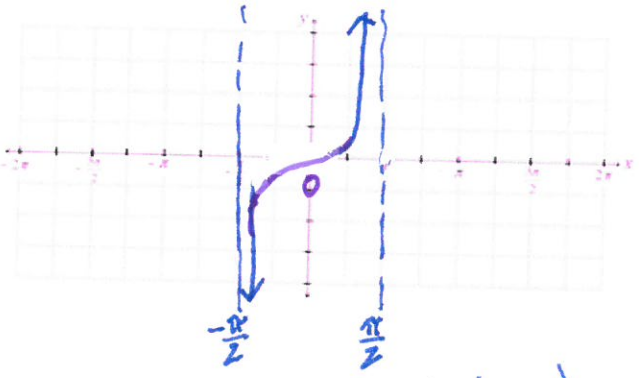
Date: _____ Period: _____

Find the period and sketch the graph of the equation. Show the asymptotes.

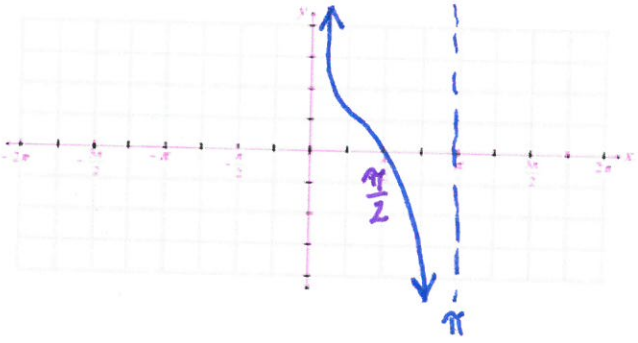
1. $y = 4 \tan x$ per: π



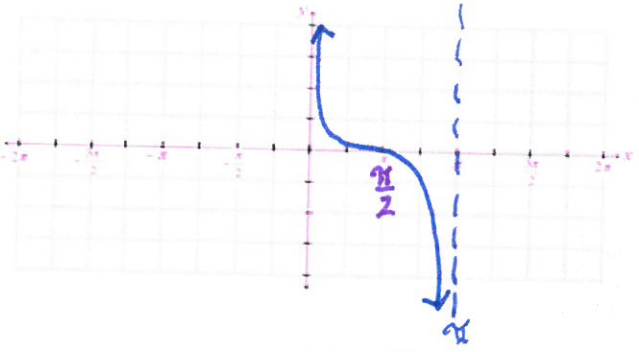
2. $y = 1/4 \tan x$ per: π



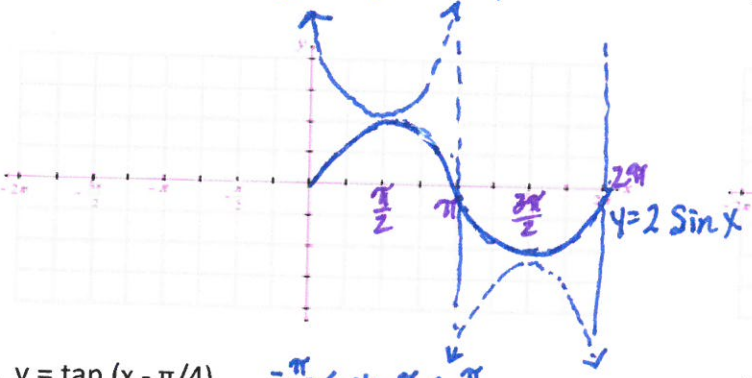
3. $y = 3 \cot x$ $y = 3\left(\frac{1}{\tan x}\right)$ per: π



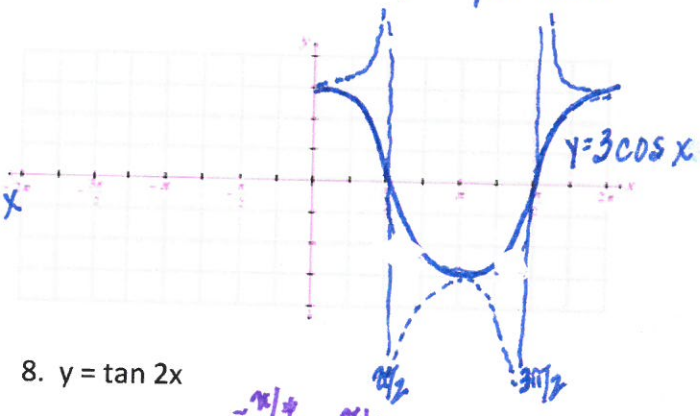
4. $y = 1/3 \cot x$ $y = \frac{1}{3}\left(\frac{1}{\tan x}\right)$ per: π



5. $y = 2 \csc x$ $y = 2\left(\frac{1}{\sin x}\right)$ per: 2π



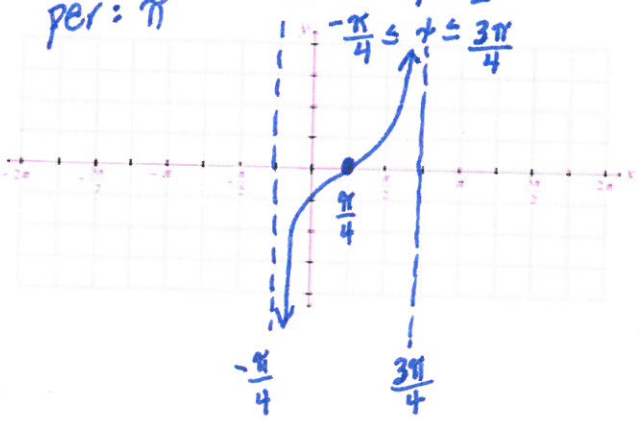
6. $y = 3 \sec x$ $y = 3\left(\frac{1}{\cos x}\right)$ per: 2π



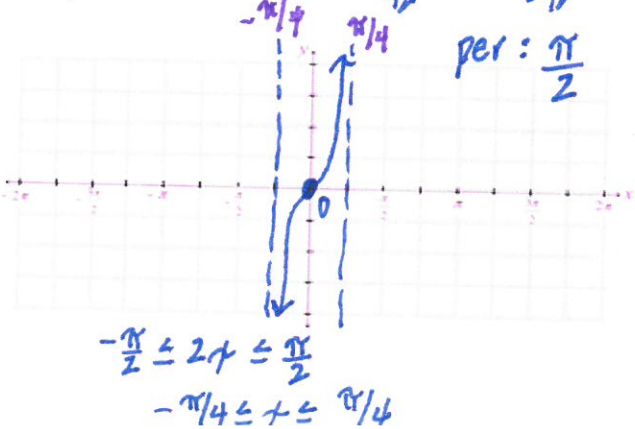
7. $y = \tan(x - \pi/4)$ per: π

$-\frac{\pi}{2} \le x - \frac{\pi}{4} \le \frac{\pi}{2}$

$-\frac{\pi}{4} \le x \le \frac{3\pi}{4}$



8. $y = \tan 2x$ per: $\frac{\pi}{2}$



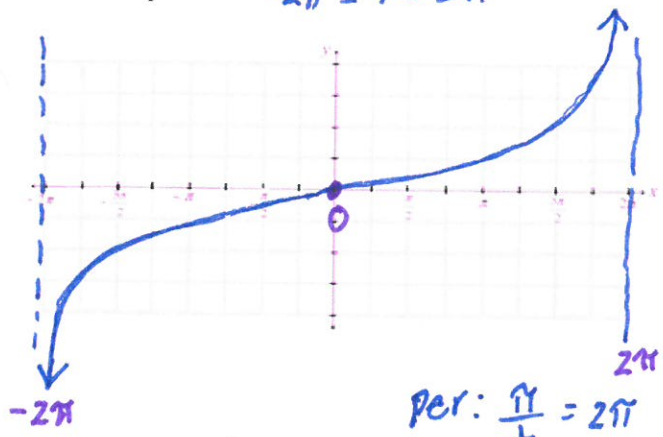
$-\frac{\pi}{2} \le 2x \le \frac{\pi}{2}$

$-\pi/4 \le x \le \pi/4$

9. $y = \tan \frac{1}{4}x$

Per: $\frac{\pi}{\frac{1}{4}} = 4\pi$; $-\frac{\pi}{2} \le \frac{1}{4}x \le \frac{\pi}{2}$

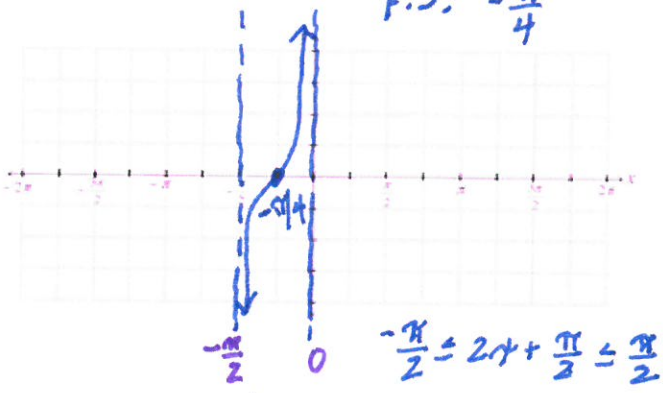
$-2\pi \le x \le 2\pi$



10. $y = 2\tan(2x + \pi/2)$

Per: $\frac{\pi}{2}$

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

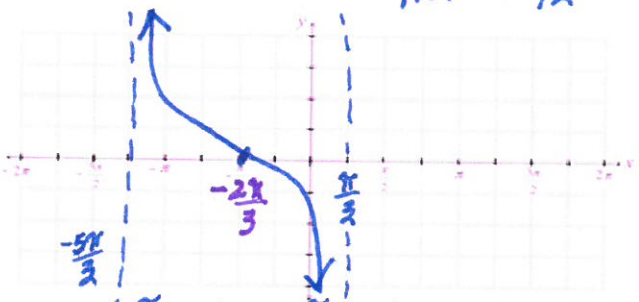


$-\frac{\pi}{2} \le 2x + \frac{\pi}{2} \le \frac{\pi}{2}$

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

11. $y = -1/4 \tan(\frac{1}{2}x + \frac{\pi}{3})$

P.S.: $-2\pi/\frac{1}{2}$



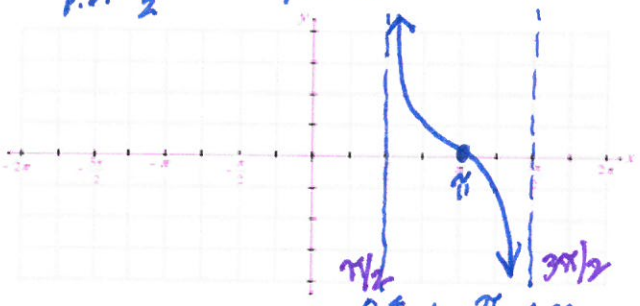
$-\frac{\pi}{2} \le \frac{1}{2}x + \frac{\pi}{3} \le \frac{\pi}{2}$

$-\frac{5\pi}{3} \le x \le \frac{\pi}{3}$

12. $y = \cot(x - \pi/2)$

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

Per: π



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

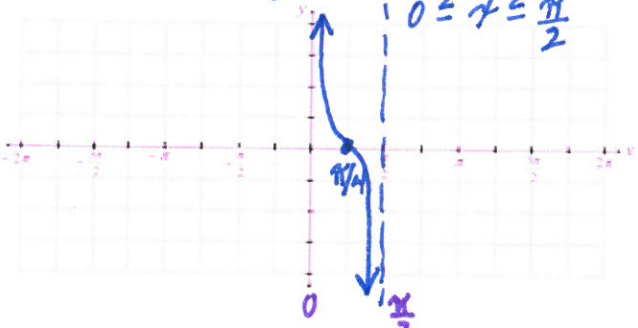
$\frac{\pi}{2} \le x \le \frac{3\pi}{2}$

13. $y = \cot 2x$

Per: $\frac{\pi}{2}$

$0 \le 2x \le \pi$

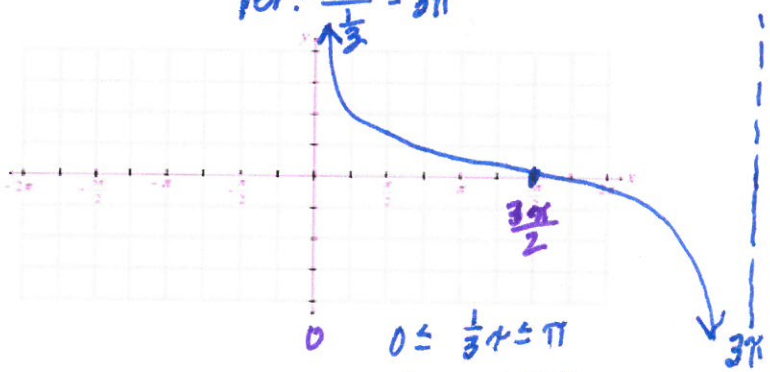
$0 \le x \le \frac{\pi}{2}$



Per: $\frac{\pi}{2}$; P.S. $-\frac{\pi}{4}$

14. $y = \cot \frac{1}{3}x$

Per: $\frac{\pi}{\frac{1}{3}} = 3\pi$



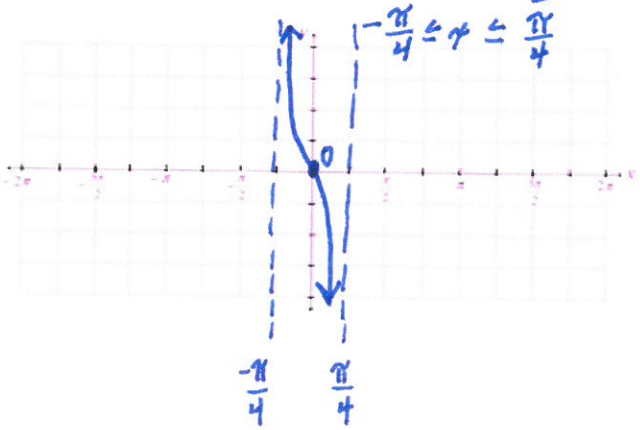
$0 \le \frac{1}{3}x \le \pi$

$0 \le x \le 3\pi$

15. $y = 2\cot(2x + \pi/2)$

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

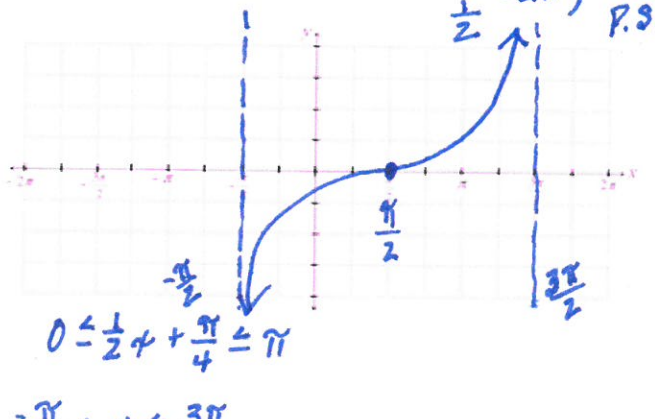
$-\frac{\pi}{4} \le x \le \frac{\pi}{4}$



16. $y = -\frac{1}{2}\cot(\frac{1}{2}x + \frac{\pi}{4})$

Per: $\frac{\pi}{\frac{1}{2}} = 2\pi$;

P.S.: $-\frac{\frac{\pi}{4}}{\frac{1}{2}} = -\frac{\pi}{2}$

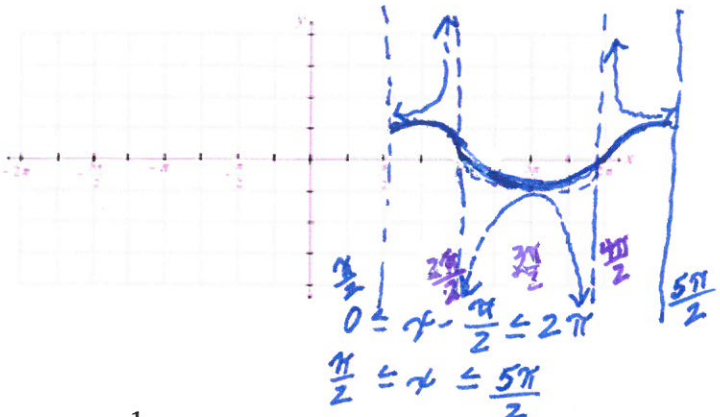


$0 \le \frac{1}{2}x + \frac{\pi}{4} \le \pi$

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

17. $y = \sec(x - \pi/2)$

Per: 2π
P.S: $\frac{\pi}{2}$



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

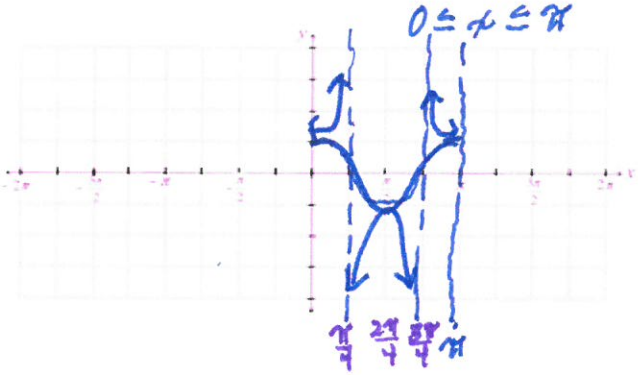
$\frac{\pi}{2} \le x \le \frac{5\pi}{2}$

18. $y = \sec 2x$

Per: $\frac{2\pi}{2} = \pi$

$0 \le 2x \le 2\pi$

$0 \le x \le \pi$

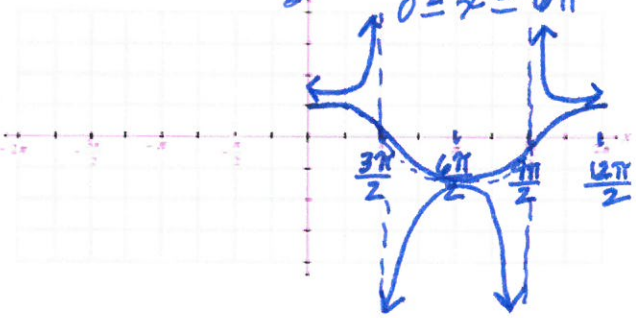


19. $y = \sec \frac{1}{3}x$

Per: $\frac{2\pi}{\frac{1}{3}} = 6\pi$

$0 \le \frac{1}{3}x \le 2\pi$

$0 \le x \le 6\pi$



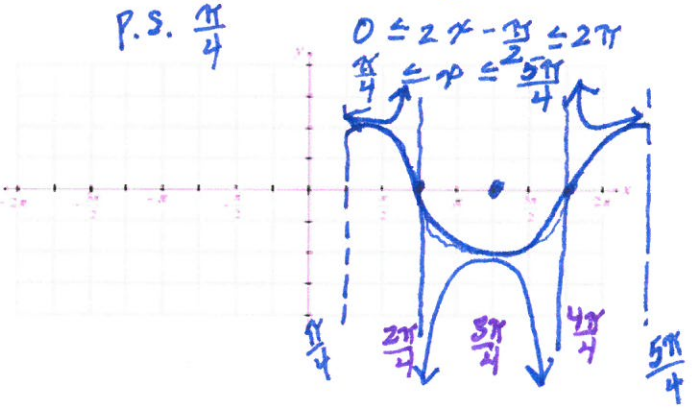
20. $y = 2\sec(2x - \pi/2)$

Per: $\frac{2\pi}{2} = \pi$;

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

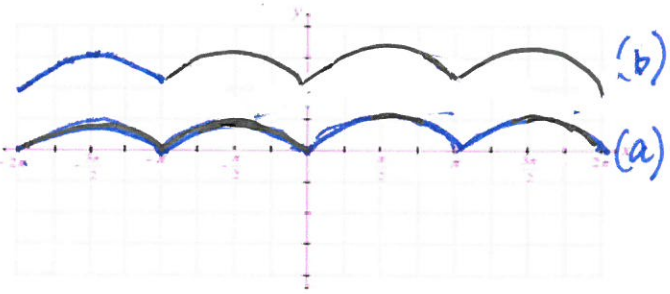
$0 \le 2x - \frac{\pi}{2} \le 2\pi$

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



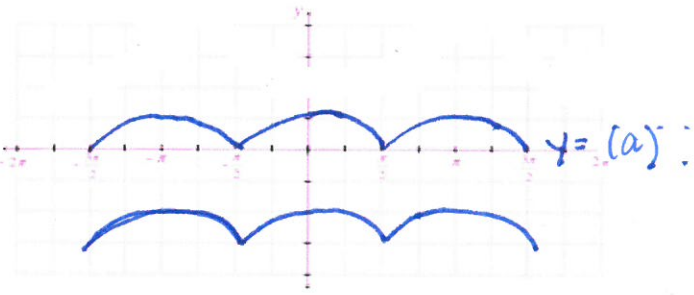
Sketch both (a) and (b) on the same graph.

21. (a) $y = |\sin x|$ (b) $y = |\sin x| + 2$



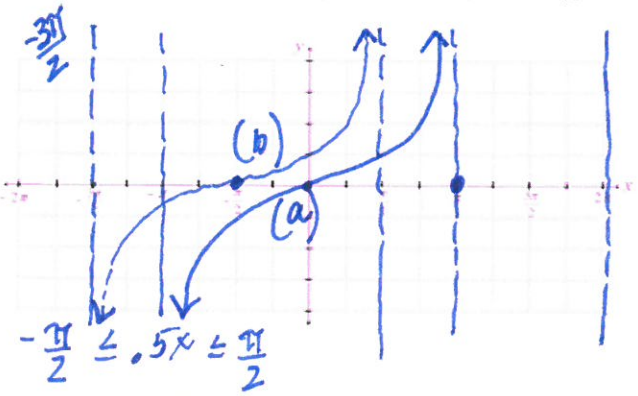
Per: 2π

22. (a) $y = |\cos x|$ (b) $y = |\cos x| - 3$



Per: 2π; P.S: $-\frac{\pi}{2}$

23. (a) $y = \tan 0.5x$ (b) $y = \tan[0.5(x + \pi/2)]$



$y = \tan .5x + \frac{\pi}{4}$

$-\frac{\pi}{2} \le \frac{1}{2}x + \frac{\pi}{4} \le \frac{\pi}{2}$

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

$-\frac{\pi}{2} \le .5x \le \frac{\pi}{2}$

$-\pi \le x \le \pi$