

Quiz 4 (20 pts.)

Name: KEY

True or False (1 pt. each)

Answer the following by circling TRUE or FALSE. If the answer is false you must explain why in the space provided for full credit.

1.) T F _____ For all real numbers x , $-1 \leq \sin x \leq 1$

2.) T F $|A| = |-3| = 3$ For $y = -3 \sin x$, the amplitude is -3

3.) T F $\frac{\pi + k\pi}{2}$ or $\frac{(2k+1)\pi}{2}$ The graph of $\tan x$ has vertical asymptotes at $x = k\pi$ where k is an integer

4.) T F period: π The period of $y = \tan x$ is 2π

Short Answer

5.) (4 pts) Find the max and min of the following functions if they exist.

(a) $y = -3 + 10 \cos x$

$$-1 \leq \cos x \leq 1$$

$$-10 \leq 10 \cos x \leq 10$$

$$-13 \leq -3 + 10 \cos x \leq 7$$

Max: 7

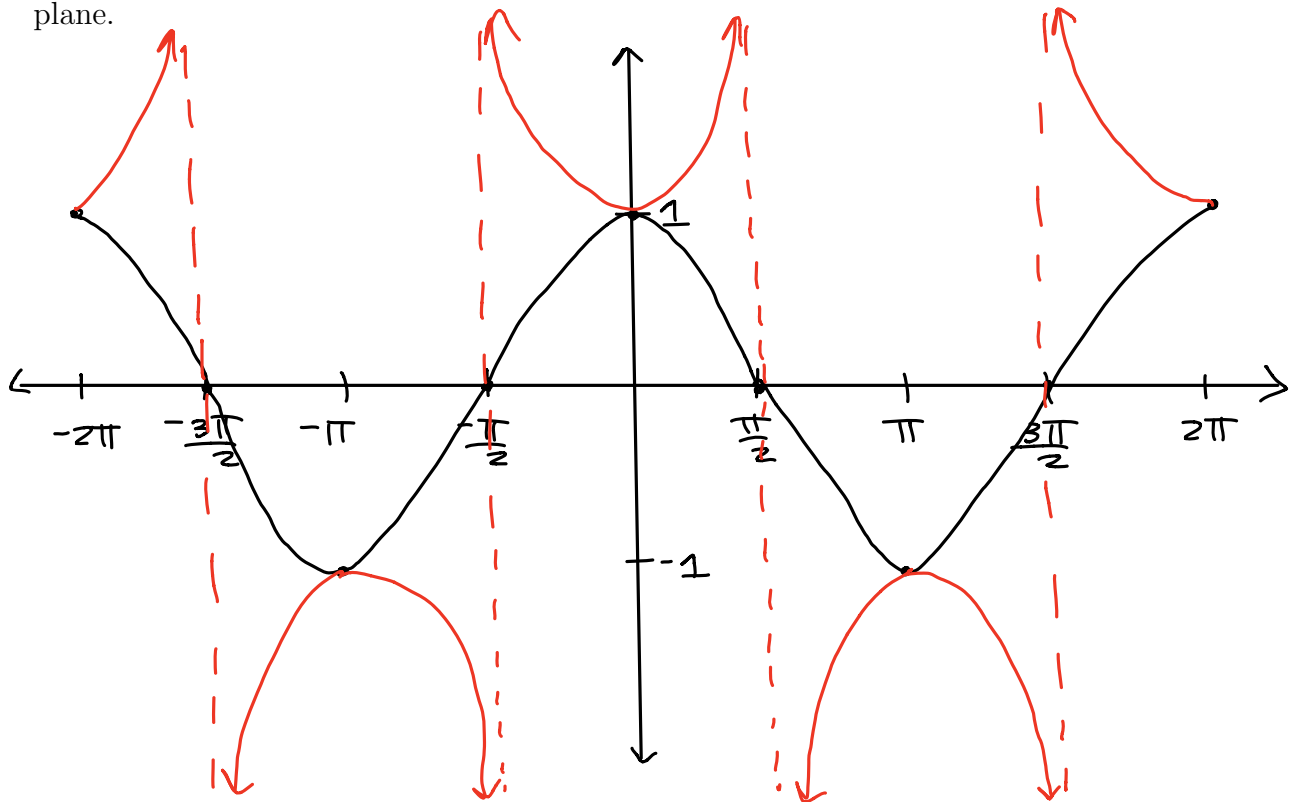
Min: -13

(b) $y = \frac{1}{2} \tan x$

range $\tan x : (-\infty, \infty)$

no max or min

- 6.) (6 pts.) Sketch the graph of $\sec x$ and $\cos x$ from -2π to 2π on the same coordinate plane.



- 7.) (4 pts) Answer the following questions with respect to the graphs above in #6.

- (a) What are the x -intercepts of $\sec x$?

no x -intercepts

- (b) What symmetry properties does the graph of $\cos x$ have?

y -axis symmetry

- (c) What is the period of $\sec x$?

2π

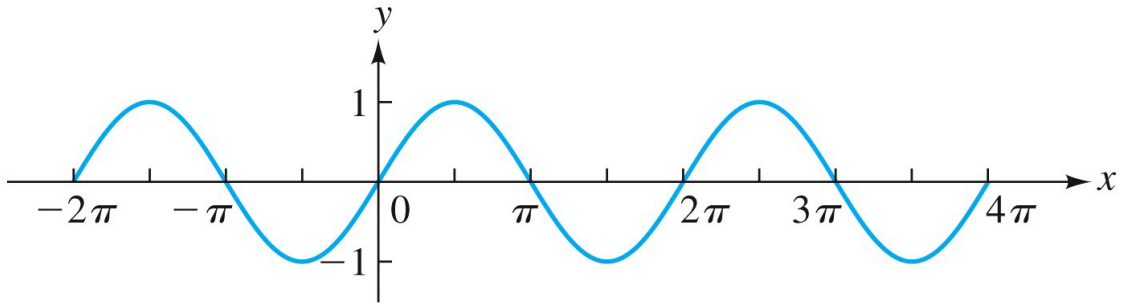
- (d) Where do the vertical asymptotes of $y = \sec x$ occur?

$$\frac{\pi}{2} + k\pi \quad \text{or} \quad (2k+1)\frac{\pi}{2}$$

where k is an integer

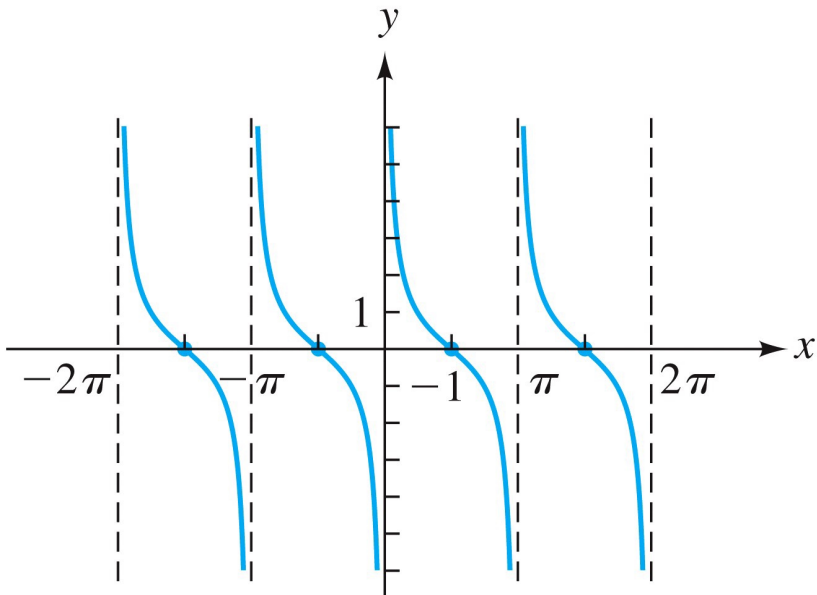
8.) (2 pts.) Write an equation for the graphs featured below.

(a) $y = \underline{\sin x}$



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(b) $y = \underline{\cot x}$



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