

Quiz 2A - Math 130

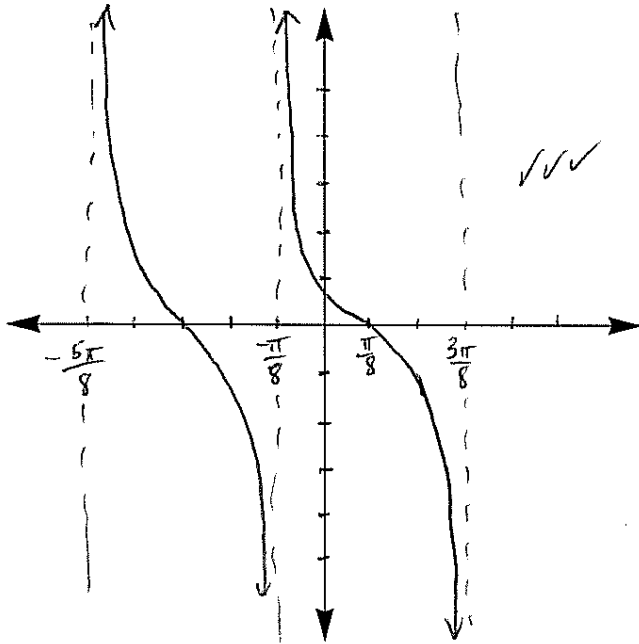
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Name: Key

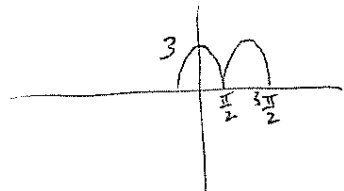
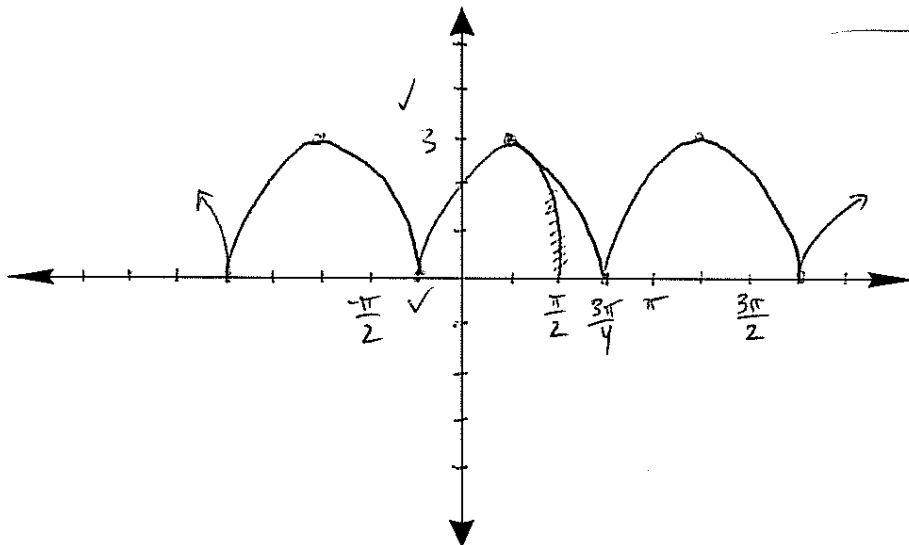
1. (3 points) Give the period, phase shift and equations of two asymptotes of $y = -\tan(2x - \frac{\pi}{4})$
Sketch at least two periods of the graph.



✓ period = $\frac{2\pi}{|2|} = \pi/2$
 ✓ phase shift: $-\frac{(-\frac{\pi}{4})}{2} = \frac{\pi}{8}$

✓ asymptotes: $-\frac{\pi}{2} < 2x - \frac{\pi}{4} < \frac{\pi}{2}$
 $-\frac{\pi}{4} < 2x < \frac{3\pi}{4}$
 $-\frac{\pi}{8} < x < \frac{3\pi}{8}$

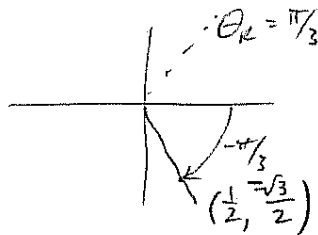
2. (2 points) Sketch the graph of $y = 3|\cos(x - \frac{\pi}{4})|$.



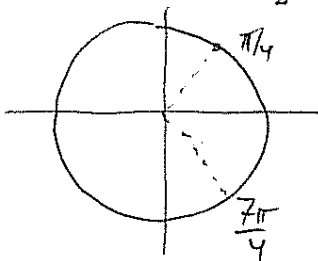
$x - \frac{\pi}{4} \Rightarrow$
 shift to the
 right $\frac{\pi}{4}$

3. (2 points) Find the exact value of

$$\begin{aligned} \text{(a) } \tan\left(\frac{-\pi}{3}\right) &= \frac{\sin\left(\frac{-\pi}{3}\right)}{\cos\left(\frac{-\pi}{3}\right)} = \frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} \\ &= -\sqrt{3} \end{aligned}$$



(b) x , if $\cos x = \frac{\sqrt{2}}{2}$, on the interval $[0, 4\pi)$.



$$x = \frac{\pi}{4}, \frac{7\pi}{4}, \frac{9\pi}{4}, \frac{15\pi}{4}$$

4. (1 point) Find the reference angle θ_R if $\theta = 547^\circ$.

$$547 - 360 = 187^\circ \text{ is in QIII}$$

$$187^\circ - 180^\circ = 7^\circ \text{ is } \theta_R$$

5. (2 points) Approximate (to the nearest tenth of a degree) all solutions to $\csc \theta = 1.485$ on the interval $[0^\circ, 360^\circ)$

$$\frac{1}{\sin \theta} = 1.485 \Rightarrow \sin \theta = \frac{1}{1.485}$$

$$\theta = \sin^{-1}(0.6734)$$

$$\theta = 42.3^\circ \text{ is in QI,}$$

also a solution in QII,

$$180^\circ - 42.3^\circ = 137.7^\circ$$