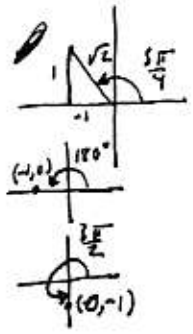
Homework #5
Math 143

Section 6.3

(19) (a) $\cot\left(-\frac{3\pi}{4}\right) = -\cot\left(\frac{3\pi}{4}\right) = -(-1) = 1$

(b) $\sec(-180°) = \sec(180°) = -1$

(c) $\csc\left(-\frac{3\pi}{2}\right) = -\csc\left(\frac{3\pi}{2}\right) = -(-1) = 1$



(21) $\sin(-x)\sec(-x) = -\tan(x)$

$$\sin(-x)\sec(-x) = (-\sin(x))(\sec(x))$$
$$= -\sin(x)\cdot\frac{1}{\cos(x)} = -\frac{\sin(x)}{\cos(x)}$$
$$= -\tan(x)$$

(23) $\dfrac{\cot(-x)}{\csc(-x)} = \cos(x)$

$$\frac{\cot(-x)}{\csc(-x)} = \frac{+\cot(x)}{+\csc(x)}$$
$$= \frac{\frac{\cos(x)}{\sin(x)}}{\frac{1}{\sin(x)}} = \frac{\cos(x)}{\sin(x)}\cdot\frac{\sin(x)}{1}$$
$$= \cos(x).$$

(27) (a) as $x \to 0^+$, $\sin x \to 0$

(b) as $x \to (-\frac{\pi}{2})^-$, $\sin x \to -1$

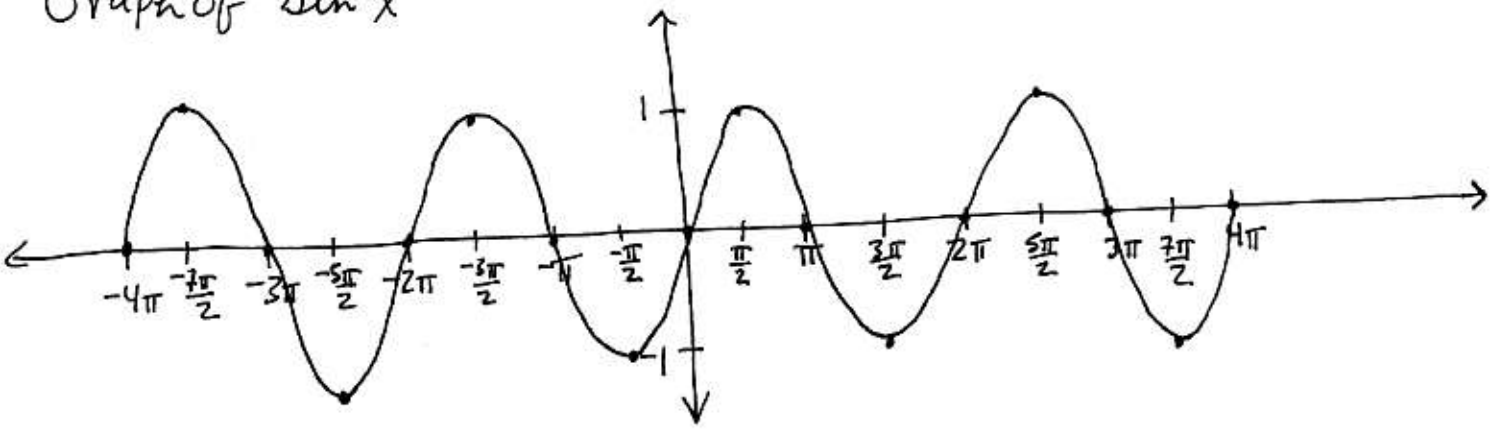
(29) (a) as $x \to (\frac{\pi}{4})^+$, $\cos x \to \frac{\sqrt{2}}{2}$

(b) as $x \to \pi^-$, $\cos x \to -1$

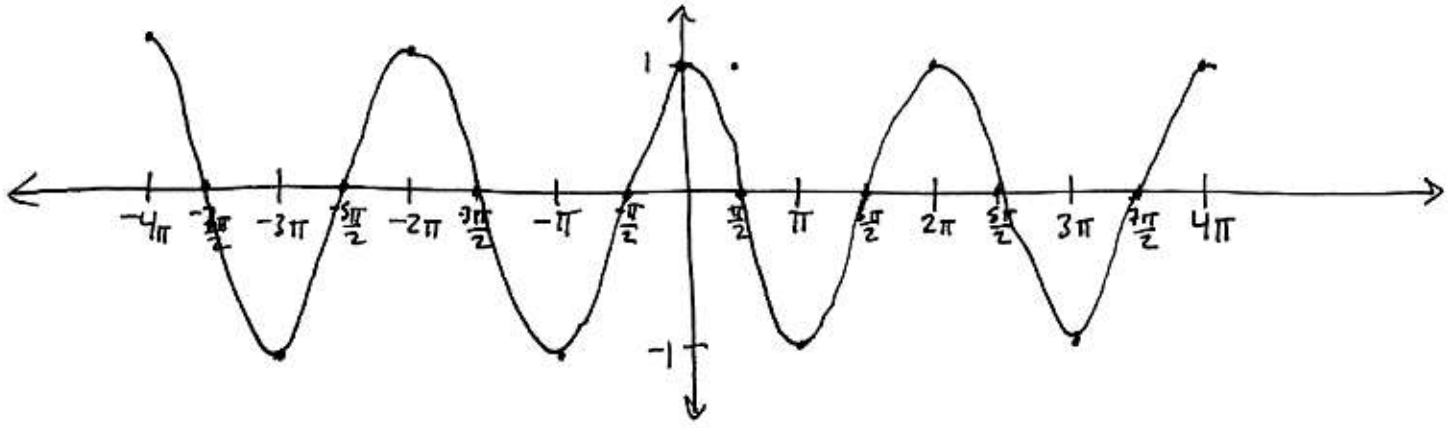
(31) (a) as $x \to (\frac{\pi}{4})^+$, $\tan x \to 1$

(b) as $x \to (\frac{\pi}{2})^+$, $\tan x \to -\infty$

Graph of $\sin x$



Graph of $\cos x$



Graph of $y = \tan x$