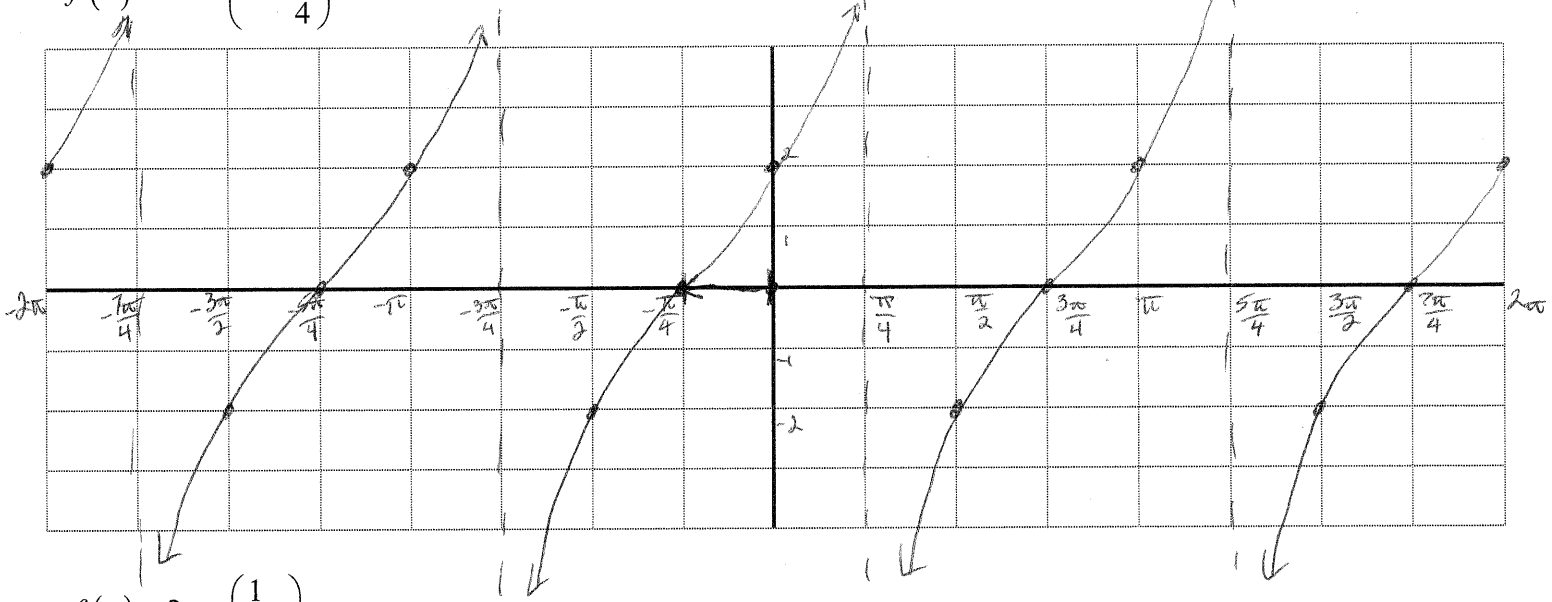
Name Key

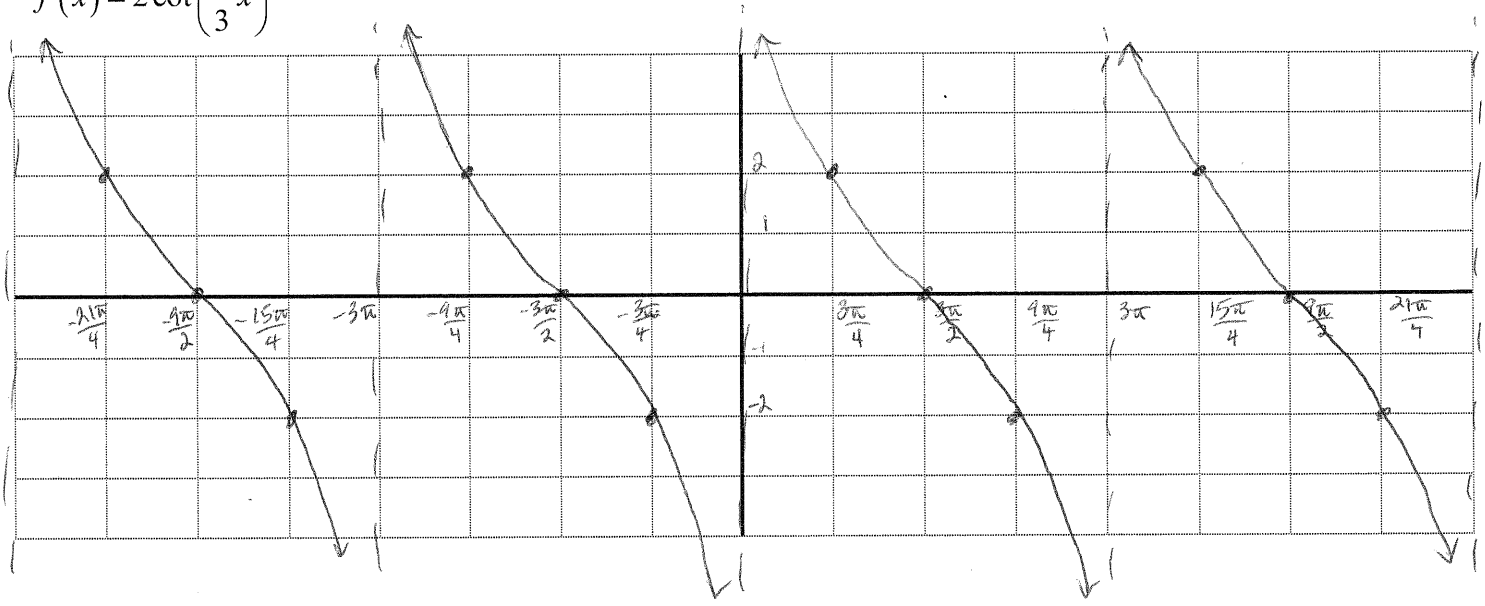
| Function | Amplitude | Period | Phase shift | Domain | Range |
|---|---|---|---|---|---|
| $f(x)=2\tan\left(x+\frac{\pi}{4}\right)$ | N/A (2 is important still) | $\pi$ | $-\frac{\pi}{4}$ | $\{x: x\neq \frac{\pi}{4}+n\pi\}$ | $(-\infty,\infty)$ |
| $f(x)=2\cot\left(\frac{1}{3}x\right)$ | N/A (2) | $\frac{\pi}{\frac{1}{3}}=3\pi$ | 0 | $\{x: x\neq 3\pi n\}$ | $(-\infty,\infty)$ |
| $f(x)=\frac{3}{5}\sec\left(\frac{1}{2}x+\frac{\pi}{2}\right)$ | N/A ($\frac{3}{5}$) | $\frac{2\pi}{\frac{1}{2}}=4\pi$ | $\frac{-\frac{\pi}{2}}{\frac{1}{2}}=-\pi$ | $\{x: x\neq 2\pi n\}$ | $(-\infty,-\frac{3}{5}]\cup[\frac{3}{5},\infty)$ |
| $f(x)=-2\csc(3x-\pi)$ | N/A (2) | $\frac{2\pi}{3}=\frac{2\pi}{3}$ | $\frac{\pi}{3}=\frac{\pi}{3}$ | $\{x: x\neq \frac{\pi}{3}n\}$ | $(-\infty,-2]\cup[2,\infty)$ |

Graph the given functions. Be sure to include all asymptotes, label the x and y axes, and graph any x and y intercepts accurately.

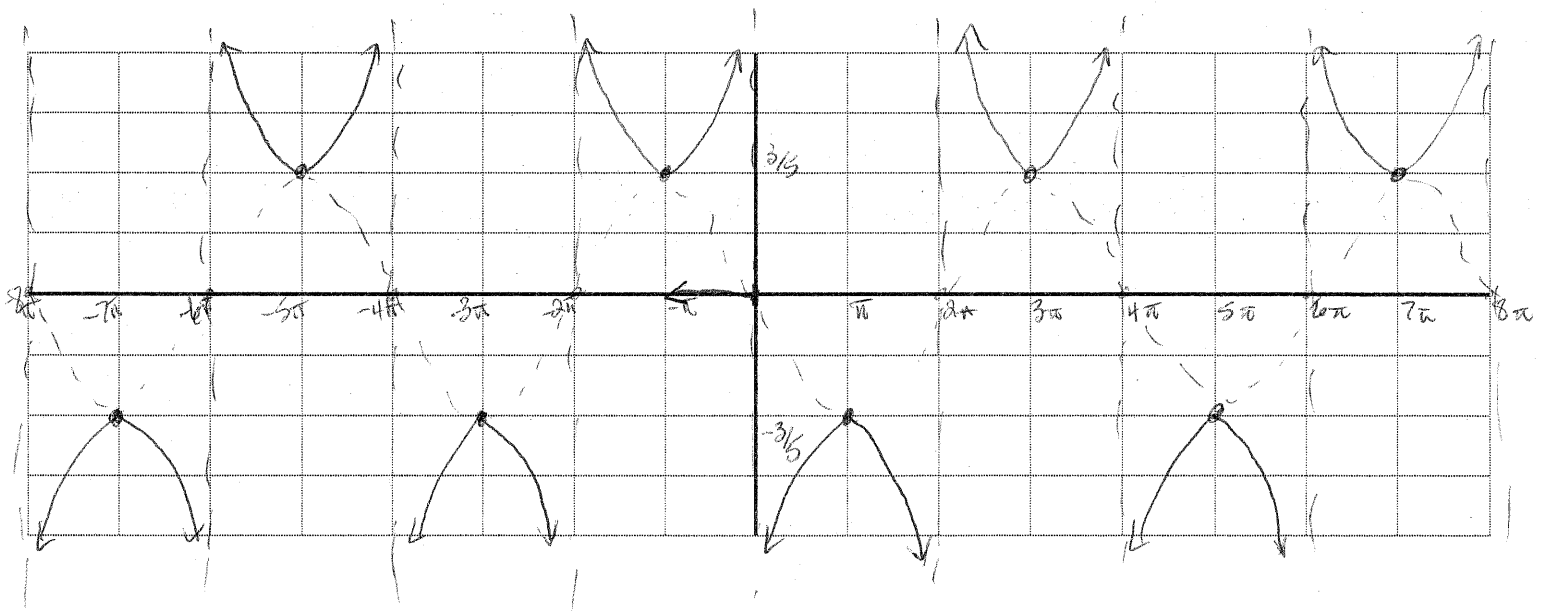
$f(x)=2\tan\left(x+\frac{\pi}{4}\right)$




$f(x)=2\cot\left(\frac{1}{3}x\right)$



$$f(x)=\frac{3}{5}\sec\left(\frac{1}{2}x+\frac{\pi}{2}\right)$$




$$f(x)=-2\csc(3x-\pi)$$