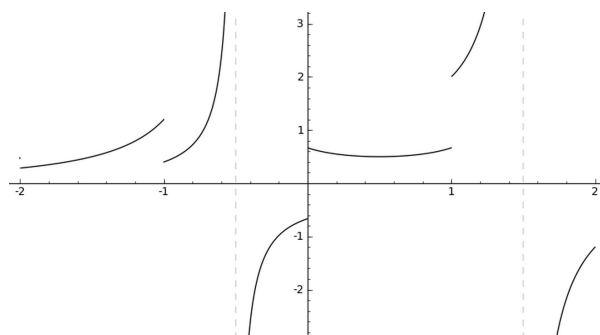


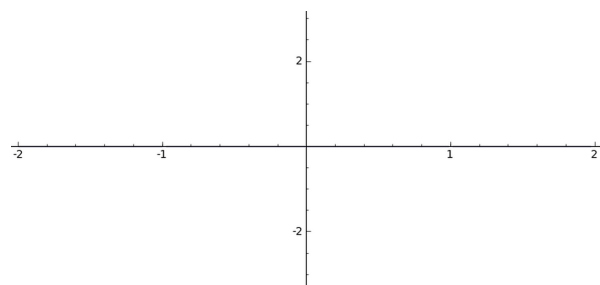
1. (a) (2 points) $\lim_{\theta \rightarrow 0} \frac{\sin(-2\pi\theta)}{3\pi\theta}$

(b) (3 points) $\lim_{x \rightarrow \infty} \frac{\sqrt[3]{27x^3 + 3} - \sqrt{x^2 + 3x} + (x + 1)}{x}$

Below is a graph of f .



(a) (3 points) Draw the graph of f' .



2. (2 points) Using the fact that $\cot \theta = \frac{\cos \theta}{\sin \theta}$ show that $\frac{d}{dx} \cot x = -\csc^2(x)$.