Given the function

$$f(x) = \frac{x}{\sqrt{x^2 + 3}},$$

find the coordinates of any local and absolute extrema and inflection points. Are there any absolute or local extrema? If so, where?

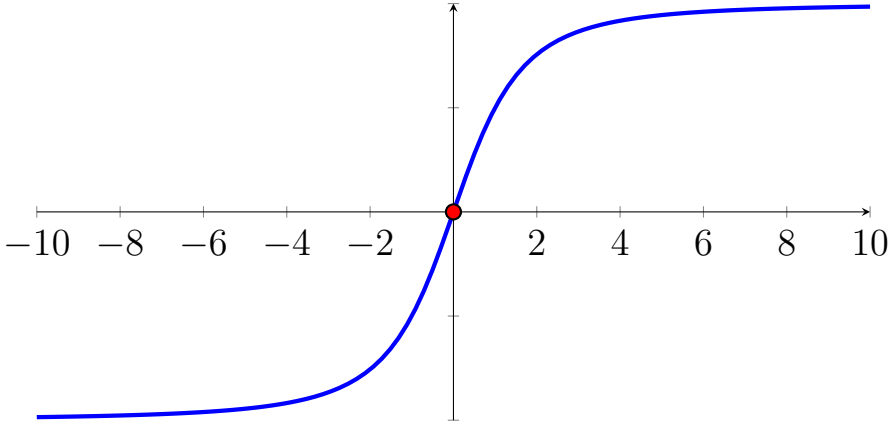
Step 1: find where $f(x) = 0$.

$$f(x) = \frac{x}{\sqrt{x^2 + 3}}$$

Step 2: find where $f'(x) = 0$. These are the *critical points*.

$$f'(x) = \frac{3}{\sqrt{x^2+3} \cdot (x^2+3)}$$

$$f''(x) = -\frac{9x}{(x^2+3)^{5/2}}$$


−10
−8
−6
−4
−2
2
4
6
8
10