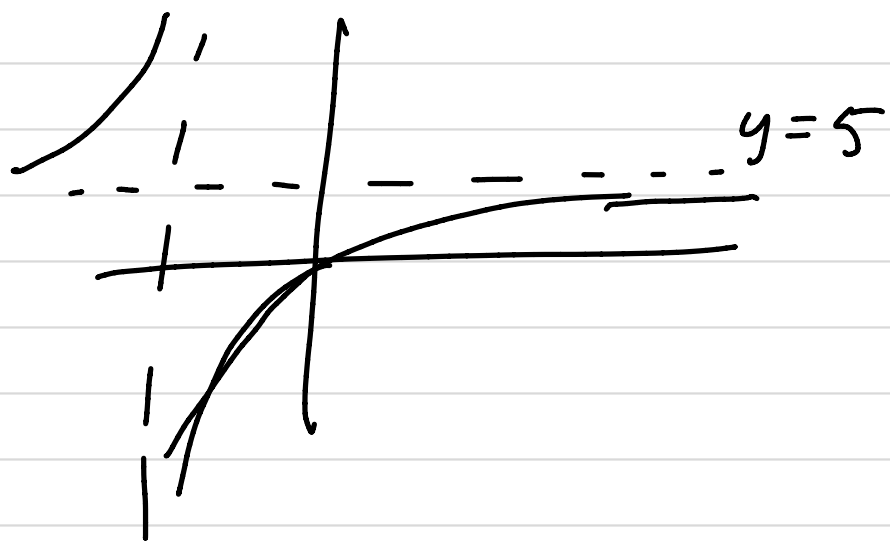
§2.6 limits AT Infinity

§2.6 $\lim_{x\to\infty} f(x) = L$ vs. $\lim_{x\to a} f(x) = \infty$ (§2.3)

limit at infinity — infinite limit

Ex $\lim_{x\to\infty} \underbrace{\frac{5x+\sin x}{1+x}}_{f(x)} = 5$

x	100	10,000	1,000,000
f(x)	4.96	4.9994	4.999994



If extra time

- $\lim_{x\to\infty} \frac{2e^x}{8-\sqrt{5}e^x}$
- $\lim_{x\to-\infty} \frac{2e^x}{8-\sqrt{5}e^x}$
- $\lim_{x\to\infty} x^2-x$ compared to $\lim_{x\to\infty} x^2-x^3$

compared to $\lim_{x\to\infty} \left(\sqrt{x^2+2x} - \sqrt{x^2+5x}\right)$