

Homework 12

§4.7#1, 3, 5, 11, 25, 27, 29, **8, 38, 50**

§4.7 #1. Evaluate the limit $\lim_{x \rightarrow 2} \frac{x-2}{x^2-4}$

§4.7 #3. Evaluate the limit $\lim_{x \rightarrow 1} \frac{x^6-1}{x^4-1}$

§4.7 #5. Evaluate the limit $\lim_{x \rightarrow 0} \frac{\sin(x)}{e^x}$

§4.7 #11. Assuming $a \neq 0$, evaluate the limit $\lim_{x \rightarrow a} \frac{\sqrt[3]{x} - \sqrt[3]{a}}{x-a}$

§4.7 #25. Describe the form of the limit. Does l'Hopital's rule apply? If so, explain how.

$$\lim_{x \rightarrow \infty} \frac{x}{e^x}$$

§4.7 #27. Describe the form of the limit. Does l'Hopital's rule apply? If so, explain how.

$$\lim_{t \rightarrow \infty} \left(\frac{1}{t} - \frac{2}{t^2} \right)$$

§4.7 #29. Describe the form of the limit. Does l'Hopital's rule apply? If so, explain how.

$$\lim_{x \rightarrow 0} (1+x)^x$$

§4.7 #8. Find $\lim_{x \rightarrow \infty} \frac{(\ln(x))^3}{x^2}$.

§4.7 #38. Find the limit $\lim_{x \rightarrow 0} \left(\frac{1}{x} - \frac{1}{\sin x} \right)$

§4.7 #50. Evaluate the limit $\lim_{x \rightarrow 0^+} (1 + kx)^{t/x}$ where k is a positive constant and t is any constant.