

(1) [5 points] Evaluate the limit, if it exists:

$$\lim_{x \rightarrow -4} \frac{\frac{1}{4} + \frac{1}{x}}{4 + x}$$

(2) [5 points] Use the Squeeze Theorem to show that $\lim_{x \rightarrow 0} x^4 \cos\left(\frac{2}{x}\right) = 0$.

(3) [5 points] Find the limit:

$$\lim_{t \rightarrow 0} \frac{\tan(6t)}{\sin(2t)}$$