

Quiz 2

1. Let

$$f(x) = \begin{cases} 2x + 3 & \text{if } x < -1 \\ x^2 & \text{if } -1 \leq x \leq 1 \\ 3x - 1 & \text{if } 1 < x \end{cases}$$

Find

$$C1: \lim_{x \rightarrow -1^+} f(x) = \lim_{x \rightarrow -1^-} f(x) = \lim_{x \rightarrow -1} f(x) = f(-1) =$$

$$C2: \lim_{x \rightarrow 1^+} f(x) = \lim_{x \rightarrow 1^-} f(x) = \lim_{x \rightarrow 1} f(x) = f(1) =$$

2. Find and justify

$$C1: \lim_{x \rightarrow 0} x^4 \sin\left(\frac{1}{x}\right)$$

$$C2: \lim_{x \rightarrow 0} x^6 \sin\left(\frac{1}{x}\right)$$