

Math 131 - Quiz 3

September 3, 2026

Name _____

Score _____

Show all work to receive full credit. Supply explanations where necessary.

1. **Choose any three of the following four problems.** Find each limit analytically. Show all work. Each problem is worth $3\frac{1}{3}$ points.

(a) $\lim_{\theta \rightarrow 0} \frac{\tan 6\theta}{4\theta}$

(b) $\lim_{x \rightarrow -1^-} \frac{|x+1|(x+3)}{x+1}$

(c) $\lim_{t \rightarrow 16} \frac{4 - \sqrt{t}}{32 - 2t}$

(d) $\lim_{x \rightarrow 4} f(x)$ where $f(x) = \begin{cases} x + \cos \pi x, & x < 4 \\ (x-2)^2 + 1, & x > 4 \end{cases}$