

QUIZ 3

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Time: 15 minutes

Problem 1. Evaluate the limit $\lim_{x \rightarrow 2} \frac{x-2}{\sqrt{x^2-4}}$. (Hint: rationalize the denominator.)

- (a) -2 (b) 2 (c) 0 (d) ∞ (e) $-\infty$

Problem 2. Evaluate $\lim_{x \rightarrow +\infty} \frac{7x^9 - 4x^5 + 2x - 13}{-3x^9 + x^8 - 5x^2 + 2x}$.

- (a) $\frac{7}{3}$ (b) 0 (c) $\frac{-7}{3}$ (d) ∞ (e) $-\infty$

Problem 3. For which value of c is the function $f(x)$ continuous at $x = 4$?

$$f(x) = \begin{cases} c^2 - 2cx + 3x & x \leq 4 \\ \frac{cx}{-2} - x + 7 & x > 4 \end{cases}$$

- (a) 7 (b) 1 (c) 3 (d) -1 (e) -3

Problem 4. Compute the limit $\lim_{x \rightarrow -\infty} \frac{\sin x}{x}$. (Hint: Squeeze theorem).

- (a) $-\infty$ (b) ∞ (c) 1 (d) -1 (e) 0