MATH 1525 CALCULUS I Quiz 3 Name:
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Problem 1. Let $f(x) = 4x - 2$.
(a) Solve the inequality $|f(x) - 10| \leq \frac{1}{2}$.
(b) Find the largest value for δ such that $|x - 3| < \delta \Rightarrow |f(x) - 10| < \frac{1}{2}$.

Problem 2. Compute

$$\lim_{x \to 2} \frac{x^4 - 16}{x - 2}.$$

Problem 3 (Extra Credit). Let $n \geq 2$. Multiply $(1 - x)(1 + x + x^2 + \cdots + x^{n-1})$. Use this to compute

$$\lim_{x \to 1} \frac{1 - x^n}{1 - x}.$$