

Name _____ Date _____ Period _____

Worksheet 102.3—Epsilon-Delta Proofs

Show all work on a separate sheet of paper. No Calculator.

Free Response & Short Answer

1. Find $\lim_{x \rightarrow -3} (4x+7)$, then prove it using the epsilon-delta definition of a limit.

Multiple Choice

2. Find a least number δ such that $|f(x) - L| < \varepsilon$ if $0 < |x - c| < \delta$ for $\lim_{x \rightarrow 5} 10x = 50$ when $\varepsilon = 0.1$.

- (A) 0.1
- (B) 0.01
- (C) 0.5
- (D) 0.025
- (E) 1

3. To prove that $\lim_{x \rightarrow 5} (x-2) = 3$, a reasonable relationship between δ and ε would be

- (A) $\delta = 5\varepsilon$
- (B) $\delta = \varepsilon$
- (C) $\delta = \sqrt{\varepsilon}$
- (D) $\delta = \frac{1}{\varepsilon}$
- (E) $\delta = \varepsilon - 5$