

SCORE: ____ / 10 POINTS

NO CALCULATORS ALLOWED

Give a formal proof (using ε and δ as shown in class) that $\lim_{x \rightarrow -1} (3 - 4x) = 7$.

SUPPOSE $\varepsilon > 0$

LET $\delta = \frac{\varepsilon}{4}$

WHENEVER $0 < |x - -1| < \frac{\varepsilon}{4}$

← EITHER ONE

WE HAVE $0 < |x + 1| < \frac{\varepsilon}{4}$

$$0 < 4|x + 1| < \varepsilon$$

$$0 < |-4||x + 1| < \varepsilon$$

$$0 < |-4(x + 1)| < \varepsilon$$

$$0 < |-4x - 4| < \varepsilon$$

$$0 < |3 - 4x - 7| < \varepsilon$$

$$|f(x) - L| < \varepsilon \quad \text{QED}$$

2 POINTS EACH