

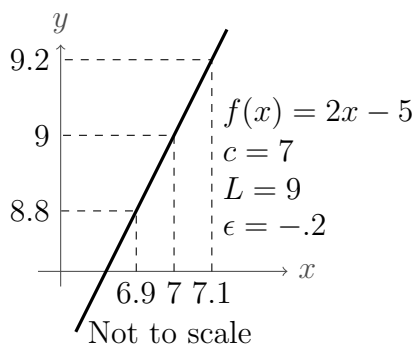
MA111 - Homework Sec. 2.3

You may work together but do not copy other peoples' work and present it as your own.

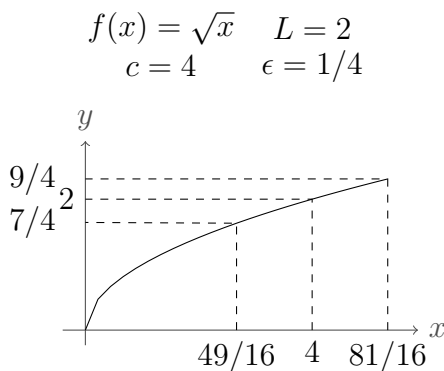
Use the graphs to find a $\delta > 0$ such that for all x

$$0 < |x - c| < \delta \Rightarrow |f(x) - L| < \epsilon$$

1



2



3 Let $f(x) = \sqrt{20 - x}$, $L = 3$, $c = 11$, $\epsilon = 1$.

a. Find an open interval about c on which the inequality $|f(x) - L| < \epsilon$ holds.

b. Give a value for $\delta > 0$ such that for all x satisfying $0 < |x - c| < \delta$ the inequality $|f(x) - L| < \epsilon$ holds.

4 Let $f(x) = 7 - 2x$, $c = 3$, $\epsilon = 0.02$.

a. Find $L = \lim_{x \rightarrow c} f(x)$.

b. Find a number $\delta > 0$ such that for all x , $0 < |x - c| < \delta \Rightarrow |f(x) - L| < \epsilon$.

5 Prove that $\lim_{x \rightarrow 4} (11 - x) = 7$.

6 Prove that $\lim_{x \rightarrow 11} \sqrt{x - 7} = 2$.

Answers and suggestions

1 0.1

4 a. 1 b. 0.01

5 Take $\delta = \epsilon$ and show that if $0 < |x - 4| \epsilon$ then $|(11 - x) - 7| < \epsilon$.