

MCS21 Homework 7

1. Find $\lim_{x \rightarrow 3} f(x)$ if $f(x) = \begin{cases} x^2 - 5 & x \leq 3 \\ \sqrt{x+13} & x > 3 \end{cases}$.

2. Find $\lim_{x \rightarrow 1} f(x)$ if $f(x) = \begin{cases} x^2 & x \leq 1 \\ \sqrt{x} & x > 1 \end{cases}$.

3. Find $\lim_{x \rightarrow 1^+} \frac{x^2 + x + 1}{x^3 - 1}$.

4. Find $\lim_{x \rightarrow 0} \frac{\sqrt{4+x} - 2}{x}$.

5. Find $\lim_{x \rightarrow 2} \frac{|x-2|}{x-2}$.

6. Find $\lim_{x \rightarrow -\infty} \frac{7x^2 + x + 11}{4 - x}$.