

Progressive Education Society's
Modern College of Arts, Science and Commerce (Autonomous),
Shivajinagar, Pune - 5

Department of Mathematics
FYBSc(Semester I)19ScMatU103

Based on Differential Calculus
Subject : Mathematics Practical-I (19ScMatU103)
Practical Incharge: Rima Ahuja
Practical 8:Limit and Continuity

1. Evaluate $\lim_{x \rightarrow 3} \frac{x^4 - 81}{2x^2 - 5x - 3}$.
2. Evaluate $\lim_{x \rightarrow 4} \frac{4 - \sqrt{x + 12}}{x - 4}$.
3. Evaluate
 - (a) $\lim_{x \rightarrow 3^-} \frac{|x - 3|}{x - 3}$
 - (b) $\lim_{x \rightarrow 1^+} \frac{|x^2 - 1|}{x - 1}$
4. Discuss the continuity of function $f(x) = \frac{x^2 + 3x + 5}{x^2 - x - 2}$ in
 - (a) [3, 6]
 - (b) [1, 3]
5. Discuss the continuity of function $f(x)$ on $[0, 4]$
$$f(x) = \begin{cases} x^2 + 2, & 0 \leq x < 1 \\ 4x - 1, & 1 \leq x \leq 2 \\ x^2 - 1, & 2 < x \leq 4 \end{cases}$$