

1. Give the $\epsilon - \delta$ definition of $\lim_{x \rightarrow a} f(x) = l$.
2. Use $\epsilon - \delta$ definition to prove the following :
 if $\lim_{x \rightarrow a} f(x) = l, \quad \lim_{x \rightarrow a} g(x) = m$
 then $\lim_{x \rightarrow a} f(x) + g(x) = l + m$
3. State the Sandwich Theorem. (i.e. Squeezing Theorem)
4. Give the definition of "f is continuous at a".
5. $f(x) = \begin{cases} x^2 + 2 & x < 1 \\ \frac{1}{x+1} & x > 1 \end{cases}$.
 Write down (1) $\lim_{x \rightarrow 1^-} f(x)$,
 (2) $\lim_{x \rightarrow 1^+} f(x)$, (3) $\lim_{x \rightarrow 1} f(x)$.