

Common Mistakes on Ch. 1 Limits Test

1. Assuming that all one-sided limits or limits approaching infinity required testing decimals (or $x = 100$, $x = -100$)

2. Including all the justifications for IVT (Intermediate Value Theorem Problems)

a) $f(x)$ is continuous on $[a, b]$

b) (*example) - By IVT, since $f(-3) = -2 < 1 < 3 = f(0)$, then $f(c) = 1$ on interval $[-2, 0]$

3. Identifying and applying steps for Comparative growth rate problems

4. Finding Horizontal Asymptotes for problems with radicals (in numerator or denominator) but having the same degrees numerator and denominator.

5a) Providing all proper notations when it comes to continuity problems

1. $f(c)$ is defined (point exists on the graph)

2. The $\lim_{x \rightarrow c} f(x)$ exists $\left[\lim_{x \rightarrow c^+} f(x) = \lim_{x \rightarrow c^-} f(x) \right]$

3. $f(c) = \lim_{x \rightarrow c} f(x)$

5b) Identifying the correct justification for Nonremovable vs. Removable Discontinuity

If condition #2 FAILS, the function has **nonremovable** discontinuity at $x = c$

If function PASSES condition #2 and FAILS condition #3, the function has **removable** discontinuity at $x = c$