

MATH 211 TEST 2 SHOW ALL WORK; BE NEAT
USE ONE SIDE OF EACH PAGE ONLY

1. $\lim_{x \rightarrow 2} (x^3 + x - 1) = ?$ 2. $\lim_{x \rightarrow 3} \frac{x^2 - 4x + 3}{x^2 - 9} = ?$

3. $\lim_{x \rightarrow 2} \frac{x-2}{\sqrt{x}-\sqrt{2}} = ?$ 4. $\lim_{x \rightarrow 0^-} \frac{|x|}{x} = ?$

5. Where is $f(x) = \frac{1}{x-2} + \sqrt{x} + \pi$ continuous?

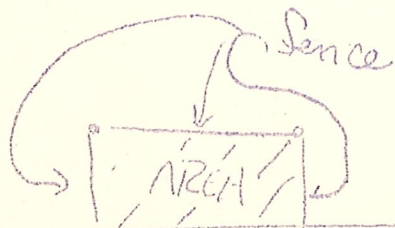
6. Find all c with $a < c < b$ such that
 $f'(c) = \frac{f(b) - f(a)}{b - a}$ if $f(x) = \sqrt{x}$, $a = 4$, $b = 9$.

7. Find the min & max value of $f(x) = x + x^{-1}$
on $[-10, -1/10]$.

8. Find the min & max value of $f(x) = 2x^3 - 9x^2 + 12x$
on $[0, 3]$

9. Find the extrema of $f(x) = x^6 + 7$

10. Find the dimensions of the rectangle of max area that can
be found by using 40 ft of fencing for three sides
and part of the great wall of China for the
fourth (assume the great wall of China is straight)



THE GREAT WALL OF CHINA