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Su EBn3 is conqubble sine 4+ is union of a commade coeffeeyon		So dispersion of the contraction
at countable sets		To the can see that m & M2(11) C TIE (M) C.
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So I it follows that R2 is covere by countably many open ball		at countable sets
		So 1: + follows that R2 is covers by countably many open ball
NO SECURIO INVESTIGATO E MARION DE LA X	2	

Billim $\frac{(x-2)}{(x-4)!}$
$0 + (x) = x-2 \rightarrow \lim_{x \to 0} + (x) 1-2 = -1 < 0 \text{so } L \neq < 0 (\text{negative})$ $0) g(x) = (x-1)^2 \rightarrow \lim_{x \to 0} + (x-1)^2 \Rightarrow \lim_{x$
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
So form this we can see that lin (x-1)2 doesn't convege and because Lf is negetine on Le is too we
$\lim_{x \to x} = -\infty$ $\lim_{x \to x} \frac{(x^{\frac{1}{2}-1})}{x^{-2}}$
$\lim_{x\to 1} \frac{(x^2A)}{x-1} = \lim_{x\to 1} \frac{(x-1)(x+1)}{x-1} = \lim_{x\to 1} (x+1) = 1+1=2 (By Aol)$ $L=2 \text{so it converges}$
$\frac{(11)}{(11)} \lim_{x \to 1} \frac{ x-1 }{ x-1 }$
$\frac{\lim_{x\to 1} x-1 }{ x-1 } = \frac{0}{0}$ (We have to use another approach)
$\lim_{x \to A^+} \frac{1x-d1}{x-d} = \lim_{x \to A^+} \frac{x-d}{x-d} = \lim_{x \to A^+} \frac{1}{x-d} $
$\lim_{x \to 1^{-}} \frac{ x-1 }{ x-1 } = \lim_{x \to 1^{-}} \frac{-(x-1)}{ x-1 } = \lim_{x \to 1^{-}} -1 = -1$ So $\lim_{x \to 1^{-}} \frac{ x-1 }{ x-1 } = \lim_{x \to 1^{-}} \frac{-(x-1)}{ x-1 } = \lim_{x \to 1^{-}} -1 = -1$ So $\lim_{x \to 1^{-}} \frac{ x-1 }{ x-1 } = \lim_{x \to 1^{-}} \frac{-(x-1)}{ x-1 } = \lim_{x \to 1^{-}}$
that Cim (x2-1) duesn4 converge

€ f(x)= x3+1 lim f(x)=Lf or lom f(x)= c3+1=> +cc>=c3+1 Let E>0, and we use the def. of limit, so the get (requires to produce & s.t. 850). 011x-c/28 so 1+00-L416E or 1+00-40016E $|x^3+4-(c^3+4)|=|x^3-c^3|=|x-c||x^2+cx+c^2| \angle (|x|^2+|cx|+|c|^2)|x-c|$ We take S 1 then we have 0<1x-0164 by A crea 1x1=1x-c+c1 <1x-c1+1c1<1+1c1 We have 1 x-c | (1x12+10x1+1012) < 1x-c | ((1+101)2+101(1+101)41012) = 1x-c1 (1+21c1+1c12+1c1+1c12+1c12) = 14-0 (31012+3101+1) So. we have that 1x-c1(3|C|2+3|C|+1)< & 8 = E 1x3-c3|2|x-c|(3|c|2+3|c|+1) 1x3-c3 1 < E . (31c)2+31C1+4

 $1 \times ^3 - c^3 | < E$ We get that $\times ^3$ to is continuous and has a limit f(c) at every real number C.

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