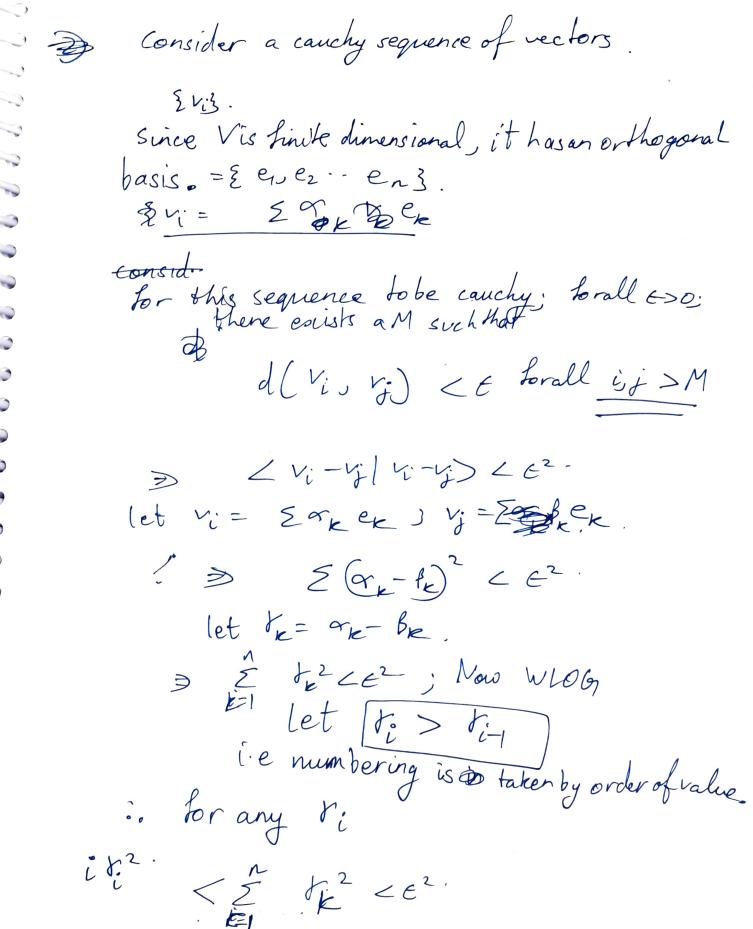


Rules for a metric dlogy) (1) d(2, 2) =0 (ii) d(2,y) =d(4,2) d(x,z) < d(x,y) + d(y,z)for d(ang)= 12-4= 1 1/2-41. : , testav: 11 x-711 x 11 x-211 this is somply what we showed to just now $f_n(D) = \begin{cases} 1-nt & t \in [-1,0] \\ t & t \in [0,h] \end{cases}$ $Cf_n,f_m = \begin{cases} 1-nt & t \in [0,h] \\ 0 & t \in [0,h] \end{cases}$ $Cf_n,f_m = \begin{cases} 1-nt & t \in [0,h] \\ 1-nt & t \in [0,h] \\ 0 & t \in [0,h] \end{cases}$ = flxidt+ fr(f-nf)(1-mf)dt +0. = 1+ (in 1 - unit + nmt2 dt $= 1 + \frac{1}{n} = \frac{n+m}{2n^2} + \frac{nm}{3n^3}$ $= 1 + \frac{1}{n} - \left(\frac{n+m}{2n^2}\right) + \frac{m}{3n^2}.$ $= \left[1 + \frac{1}{2n} - \frac{m}{6n^2}\right]$

To show that If n 3 is converger cauchy, we simply consider d(fn Im) in>m = \$ / < fn - fm) fn - fm) = / < In (In) + < In I Im) -2< In I Im) $\frac{1}{3m} + \frac{m}{3n^2} - \frac{2}{3n}$ $\sqrt{3m} + \frac{m}{3n^2}$ $\sqrt{\frac{1}{3m}} + \frac{1}{3m} \left[n > m \right].$ = $\sqrt{3m}$ Jam is a dec tends to zero. . Here exist aM such that Jam < E Forallie Forallm >M > Forall real 6>0 there exists a M such that d(In Im) < E forallpm>M These functions converge to for= 31 x= [-bo]

These functions converge to for= 30 otherwise space is not complete as this cauchy sequence converges to a function outside the space.



 $\Rightarrow \quad \forall i \leq \frac{\epsilon}{\sqrt{i}} = \epsilon'$

in the coefficients of the form

a cauchy sequence but coefficients of

ei are real numbers in this can chy

sequence connerges to a real number.

in Each coefficient converges to a real no.

in & Vectors a converge

3 Space is complete.