Calculus - lecture Y ... SERIES AND SEQUENCES * Sequences. CThomas, 10.1 . +. Adams, 9.1). * Infinite . Sines . (Adams, 9.2) * Convergence tests for positive neres (Adams 9.3) * Absolute and Conditional Convergence SEQUENCES A sequence fant = list of numbers (a), a, ..., an ... in a given order usually, nequences are infinite. = have no last element * a sequence can be oun as a junction : j:H-R:n-san=J(n) Examples " Nn , to (-1)" (this is a formula for the general tern) · a=1, a=1; a== a=+ an= . (recorsive formula) Ly 1,1,2,3,5, FIBOHNACI SEQUENCE (a. pattern). ~> such pequences / secies are powerful ways to approximate. (transcendental) functions by polynomials, express ... irrational numbers, ... * Main question about nequences: does it converge? convergence: a requerce an > L if YE>0 IN EH, ouch that, if n > H, lap-L1 < E Lo. L is the limit of an (lim. an = L) within & distance. Ly if the limit does not exist, annumaring an in of 2 Lo of the limit is indivity, an DIVERGES TO an such that , y h , N, (analogue for -0) Examples: in >0, not >1, (-1)" diverges, n -> +00

-> if the nequence can be pan as a real function, i.e.
if f(x) (x \in (R)) is defined for x > no., and an = f(n)
for n > no, then little f(x) = L => an -> L

for example: 1, In,...

opposite is not true : Cos(21111) invopolis