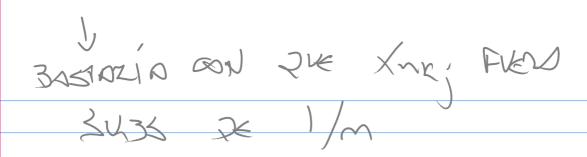


Probar que si toda subsucesión  $(x_{n_k})_{k\in\mathbb{N}}$  tiene una subsucesión  $(x_{n_{k_j}})_{j\in\mathbb{N}}$  que converge a  $\ell$ , entonces la sucesión  $(x_n)_{n\in\mathbb{N}}$  converge a  $\ell$ .

1260: 247 /mm) => y; Brop 4 [1/mm))
135 = (/mm;) > y
135 = (/mm;) => y



CONTINUIDAD UNIFORME

PROP: SEA ISIR INTERVALO.

SEA J: I -> IR. SUP QUE

FES JEZUV CN I, Y QUE (JM)

CON J-1,C) I EM FORT

CU-DUCES JESUNIF CONT

ZEM: SEAN X, YEI, X CY

Tfx) - f(y) = f'(c)(x-y)

TVM; CE(X,Y)

" - (S LIPSCHTK CON CIEM ? Asi, 2000 5000 J= 5/ : Asi 1f,x)- (y) LE 51 1 X-4/2 d EJEMPLO: SER X>0. Sen f(x) = 1/x, f: [x, +00) -> 12 ~) fes whit cont en I PERO: - NO ES WHIF CONT EN (0,+00)

17. (a) Sean (E,d) y (E',d') espacios métricos y  $f:E\to E'$  una función. Probar que si existen dos sucesiones  $(x_n)_{n\in\mathbb{N}}, (y_n)_{n\in\mathbb{N}}\subseteq E, \,\alpha>0$  y  $n_0\in\mathbb{N}$  tales que

i.  $\lim_{n\to\infty} d(x_n, y_n) = 0$  y

ii.  $d'(f(x_n), f(y_n)) \neq \alpha$  para todo  $n \geq n_0$ , entonces f no es uniformemente continua.

Tomo 
$$X_m = \frac{1}{m}$$
,  $Y_m = \frac{1}{m+1}$ 

Así  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(Y_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(Y_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m) + \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_m) \stackrel{?}{=} \frac{1}{2}(X_m, y_m)$ 

From  $\frac{1}{2}(X_m, y_$