2

Seminar 4 Ex.1: Prove that the sequence (sin n) has no linuit

For kell, consider Is = [ { 1 + 2km, 2h 1 + 24 u]

*Je*= (stzler, +2k n] length (I) = length (Je) = 1 > 1 => 3 mie E Il nw, I mee te non

=) sim me , sin ma 2 - 2 -) (sin ma), (sin Ab) are two subsiprences of (sinn) that cannot have the same limit

) (om n) has no limit,

Ex2: In each of the following cases, study if

the sequence (Ah) is bounded, monotone and

the suprence (An) is convergent (if possible, find alse study of a) som ( 2 men. soes the sequence ( 11 ) have a limit?

15 en 2 / MEN =) (on) bd. tu= 1

HecN, Azkery Letzt ko (tr) is not monotone Cant even \* 2 Iben #zk> "dizer S eventually noroctone) dat na

£ tm < 1 h Aman . By the Squaese Then, (h) count. and line to

In an t-slim, me in you want = 60°.m, men

your call Yanlike so

I 01

(gn) has no limit, is divergent

C) annen

het hel.

By the Sqweere Thun, (on) is coni and

atau 2 tan than a thin a {t Gü b) \*=615\* + more on MEN

2-61\*\*st á olan <3, then » (om) bed.

\*kN, Azet Ltzke } \* 24 = 1+ 1+ 1/6 - 2 + 1 like

(am) not monotine

\*> Haut inot tron A>ky -Add to be the

I eventually montone) ty → 2 h

} - (n) has no limit, is divergent

hu thao

HEN

KEN

(on) bd

Enth

< 1

then

=) (mm) is strictly decreasing

**-**

***a*s**

tight so

d) 2,610,1), #um= 2\* \*

e) a>0, 2, 20, kur = 2 (ant a 2), MEN

Clearly, an to, then

We show that the 10,1), Ime in resing mathematical induction ;

***\**\*16 *(*91)**

hat leon and suppose 16810,1). Then osaam=2272+ < 2.17 / 2 1 » Hem & (91) >> that *(* me IN

Anta am = 22ent" an= 1-2m > 0,&nen > (m) strictly increasing >> (8km) convergent . Let e- lim in ER

*l*a 24" => = 1

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CA (2014.12, 6(my home) anon > Venta Am > Ta, taza #nia - Ana ana -an= a-ti į o, &n32 => (am decreasing

» es va so => (and convergent. Let l-lim tu ell *bi*lety) - 4:=elza Ser*r*a

minsan, da} & an <mart (2n, ta} , &nen For m72, denote the partial sums by Am = (luzatuz) - (h. 2-luq) + (het tu 3)-(luz tuz) + ... + (endurilhan) - ( bulytte (1-1)

= hunt) - lum -h2 = ln (1+1) - ln 2 - -hi 2 (oc butt) < 1 m, Unan) 2 hou en 1-4/2) =- km2

(4+ 4 face 1) win

Ext3: Find the sum of

the

following

series :

"}},63\*;

Mo & M&M

-5/9€ (-1,0)

\*) g

en

21 am - 2.5 -2.(

lo

") E m (at) For m72, ln (1-4/2) = ln 12 / ln (121) - lum? = ln finift bulmM) - 2 hun

o*len (*ut o) -enn)-(lum - ernt))

wedlones de la tormenta à Couting anywis), \*new \*\*\*, si la stat tawala wanyats)) - 1 *(&* -comcn-z» 4

worz)

=) linn

on=3

**2**

1

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a) no medios de interest f) men, wird - 2 Vat + vw =((med huse) - (Juwel to)

3(4+1)-2

Sum

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line

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**+**

Bau &t but content

El tau

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***+***

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