

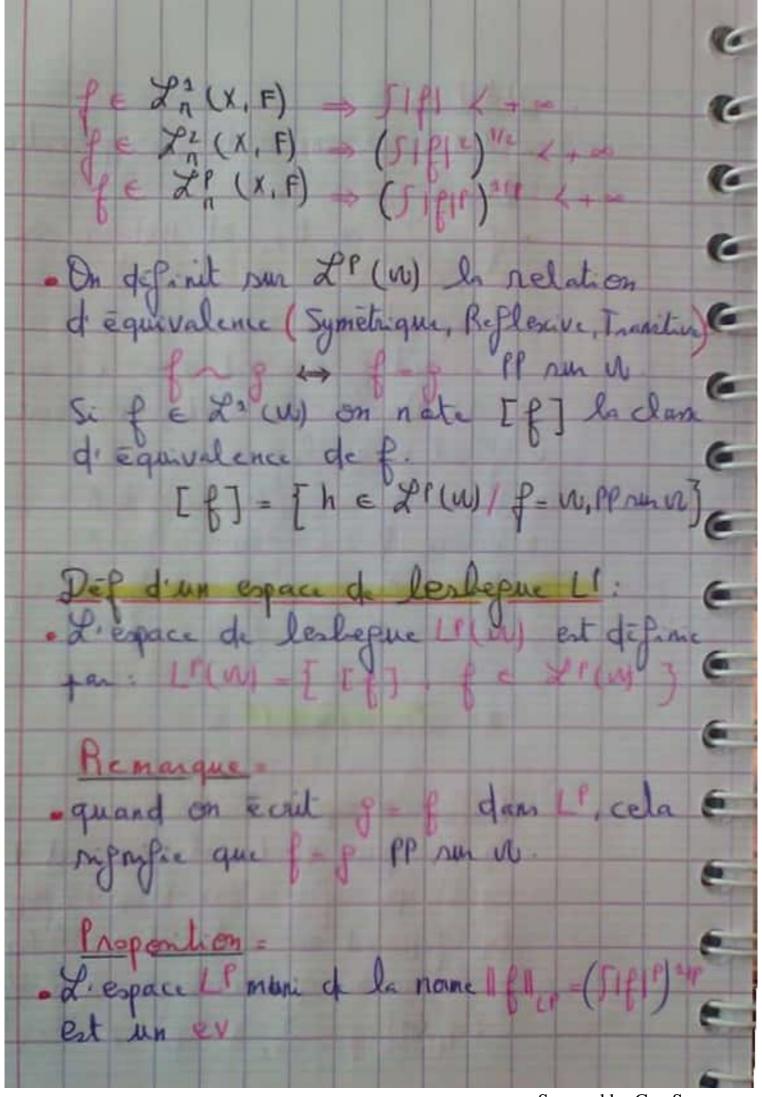
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Notation = E(X, F) l'ensemble des applications étapées.

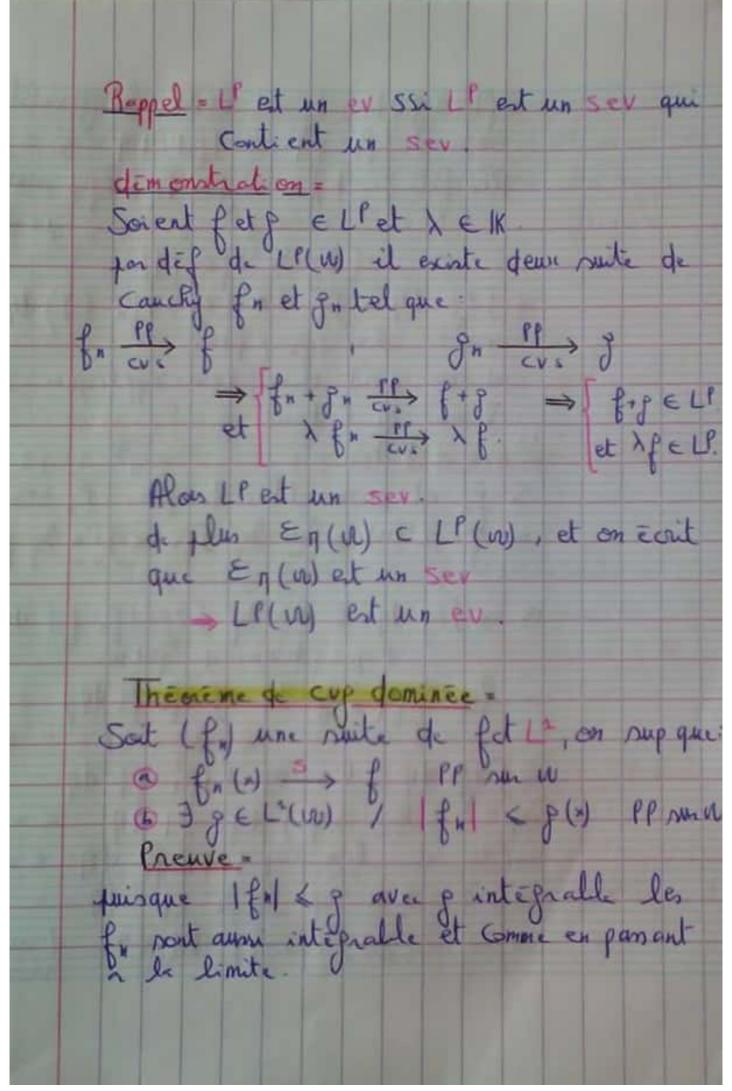
Prop = " y 11 E. est Métape SSi M(E) (100. no positions = (X, A) dons les Conditions suivant sont équivalent 1 fest monarable 2 Vacil : [f() ya] En Q Va EIR: { f(x) (a) EA Q Va EIR: { f(x) > a] EA (5) Va∈ R: { }() 6 a] ∈ A I . Les espaces LI: DEP = L'espace L'i(X,F) on X espace vectorial norma et Fespace de Banaris on dit que f e Zi (x, F) => 3 (file & En (x, E) to (fu) in est une suite de cauchy par rapport a la norme qui converge vers of 17pp.

En XFT & Z Le dont nots

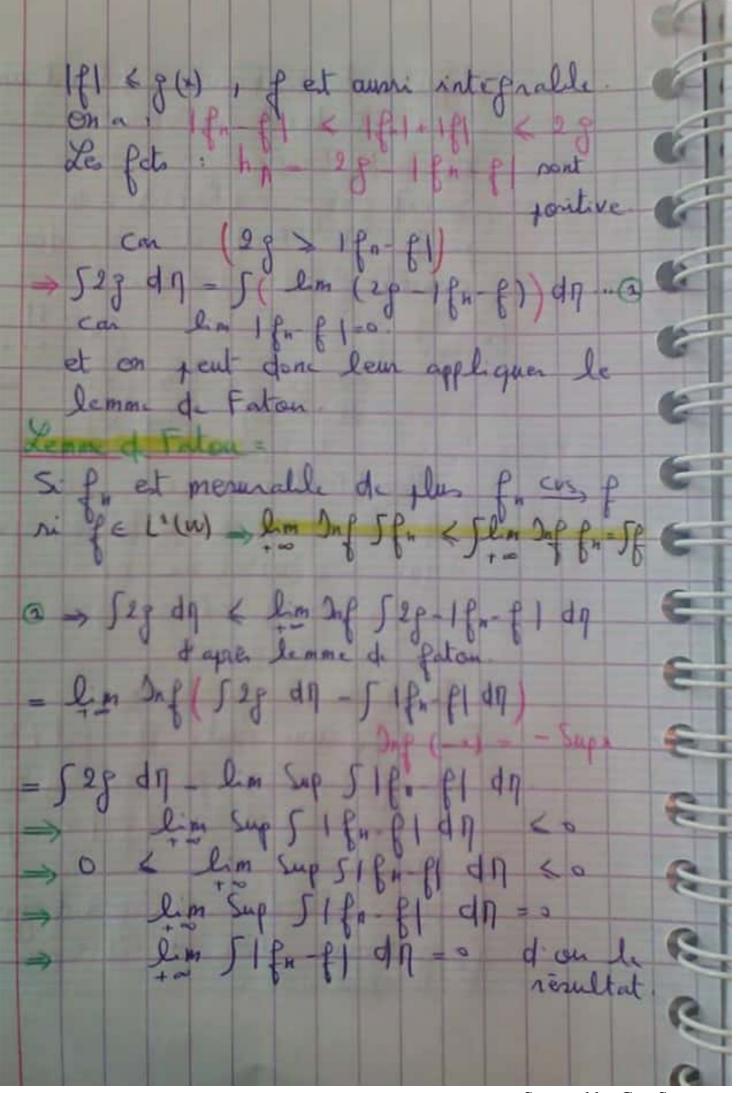
The series of 17pp.



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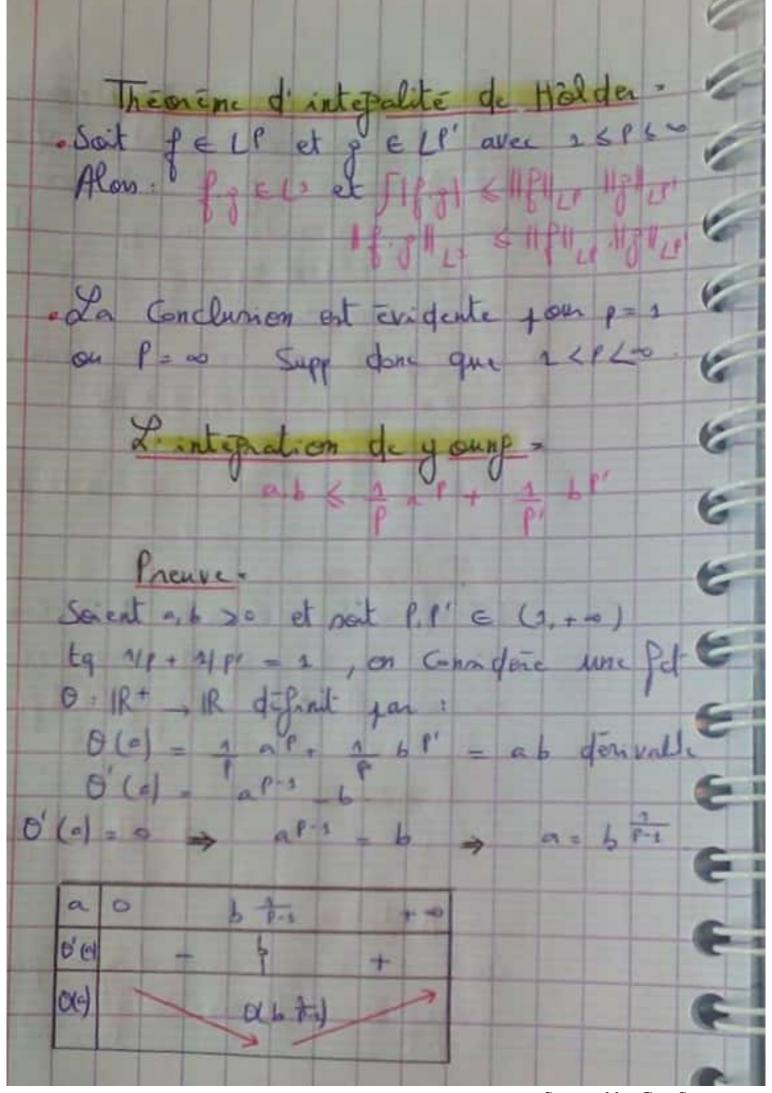
Soit (fn) une suite monatone d'élément de pour qu'il existe une app g'alignalle en resume si : 9 f - 9 pp sur vi) (fn) est une route croissante. Alon for - Be Live Res 17 30, 15 for 169 Definition

Locus = Ef N > IR et 3 Contante c

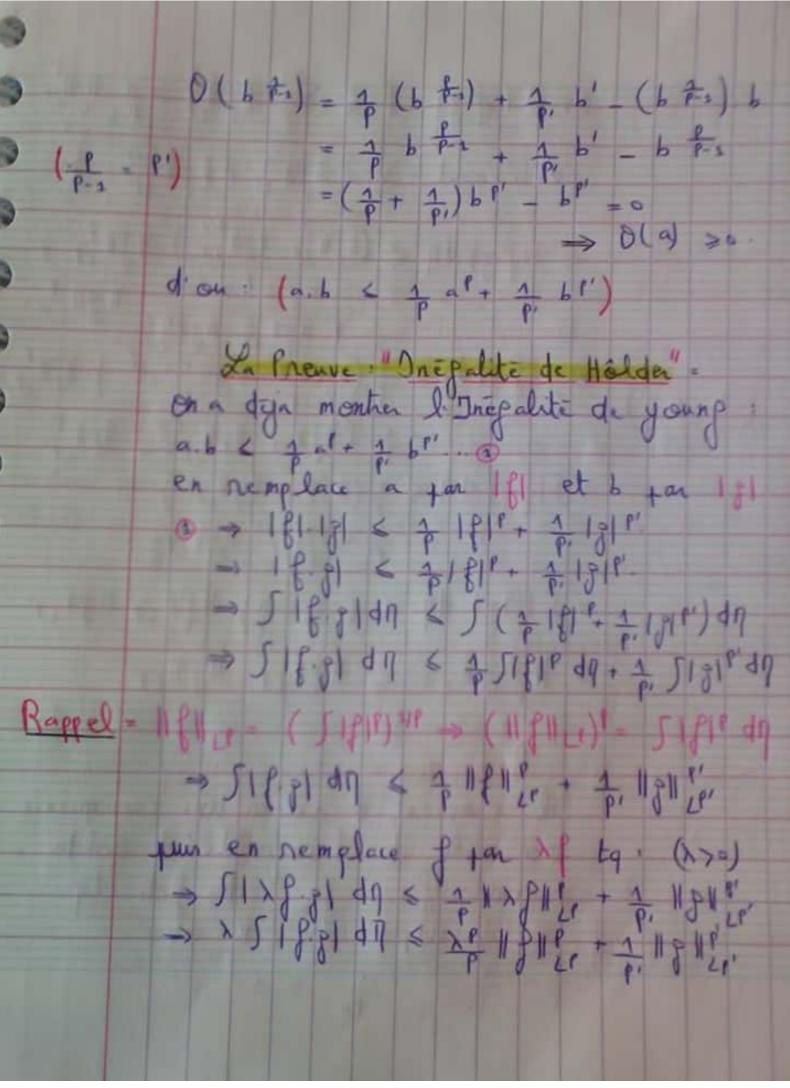
ty If(x) | C C PP Non N 3

con note If I Don't E 1 If(x) | C 3 PP min Si f E L', on a : If will & If II Plane Soit 1 & P & + - on désigne par l'éxposant Conjupure de l'ic : 1 = 1.

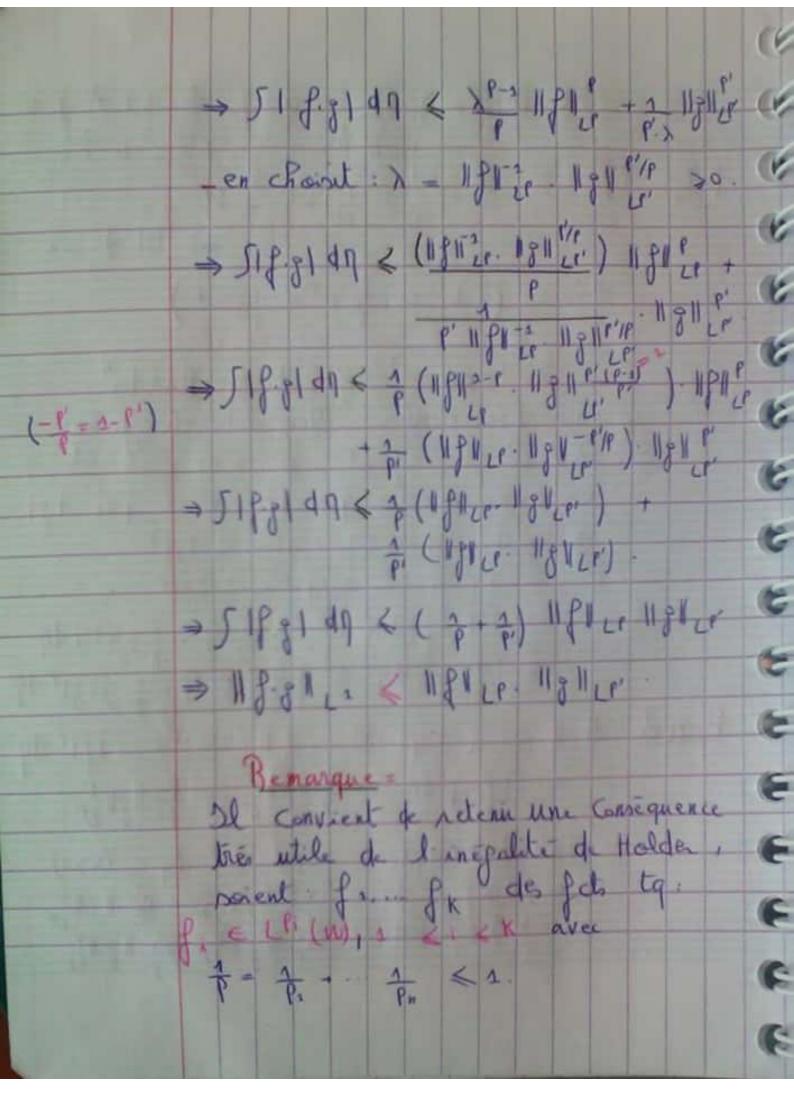
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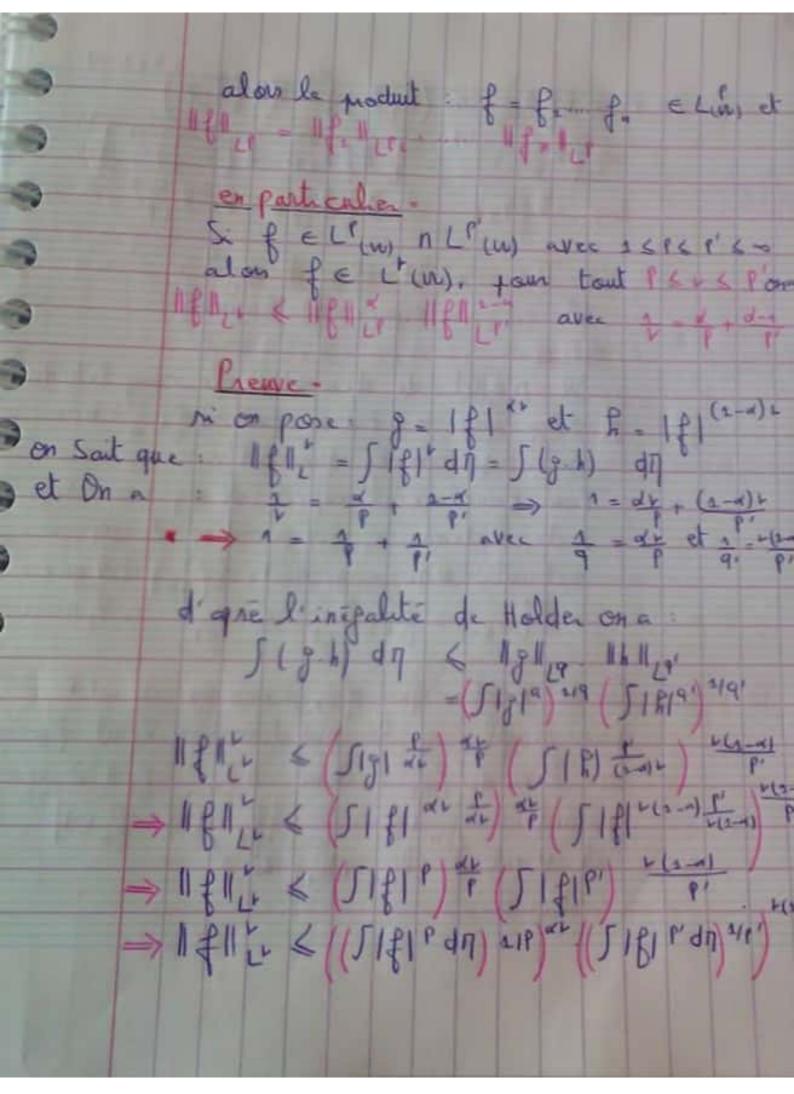
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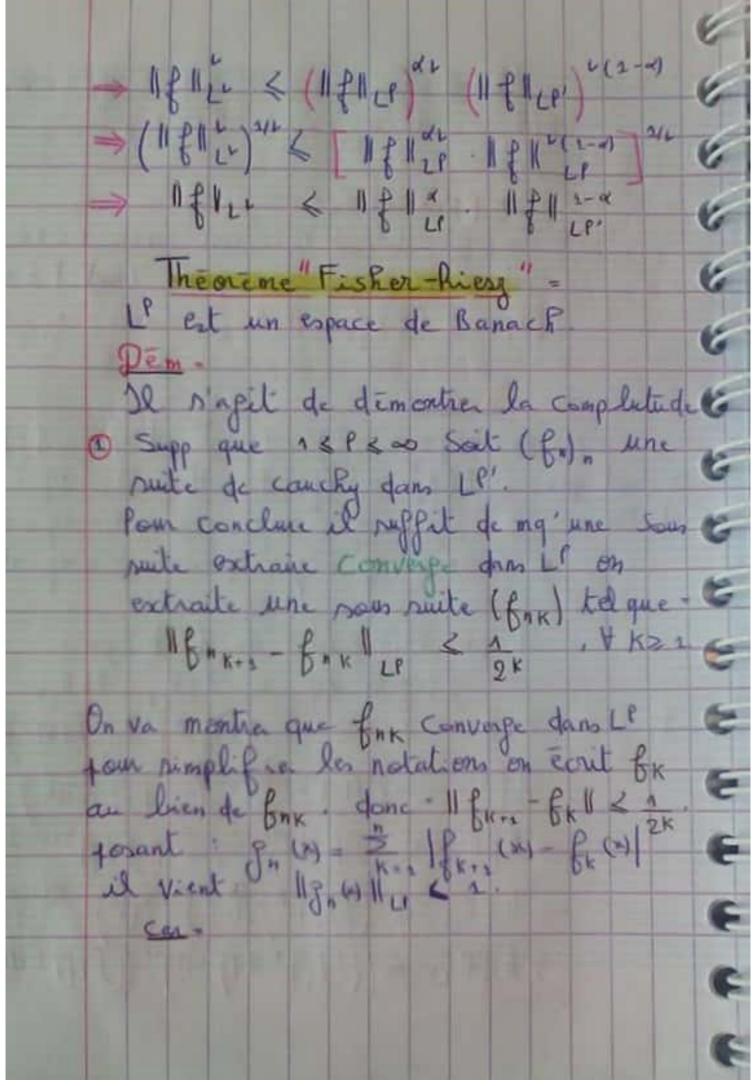
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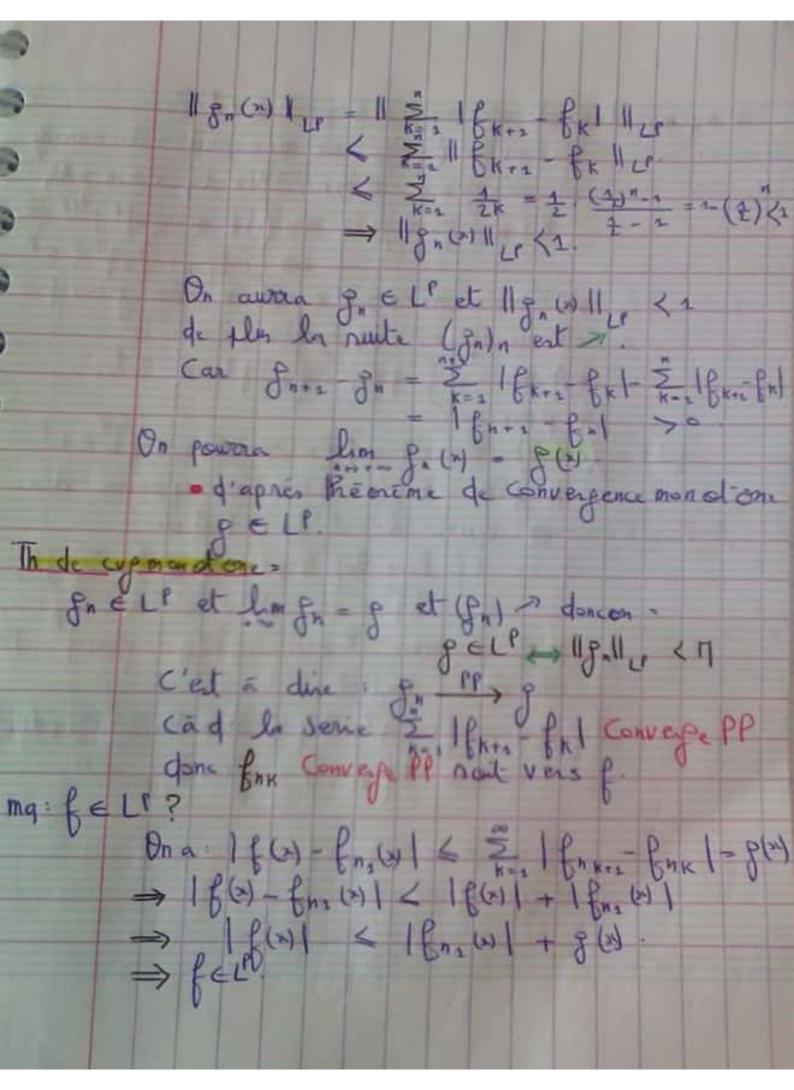


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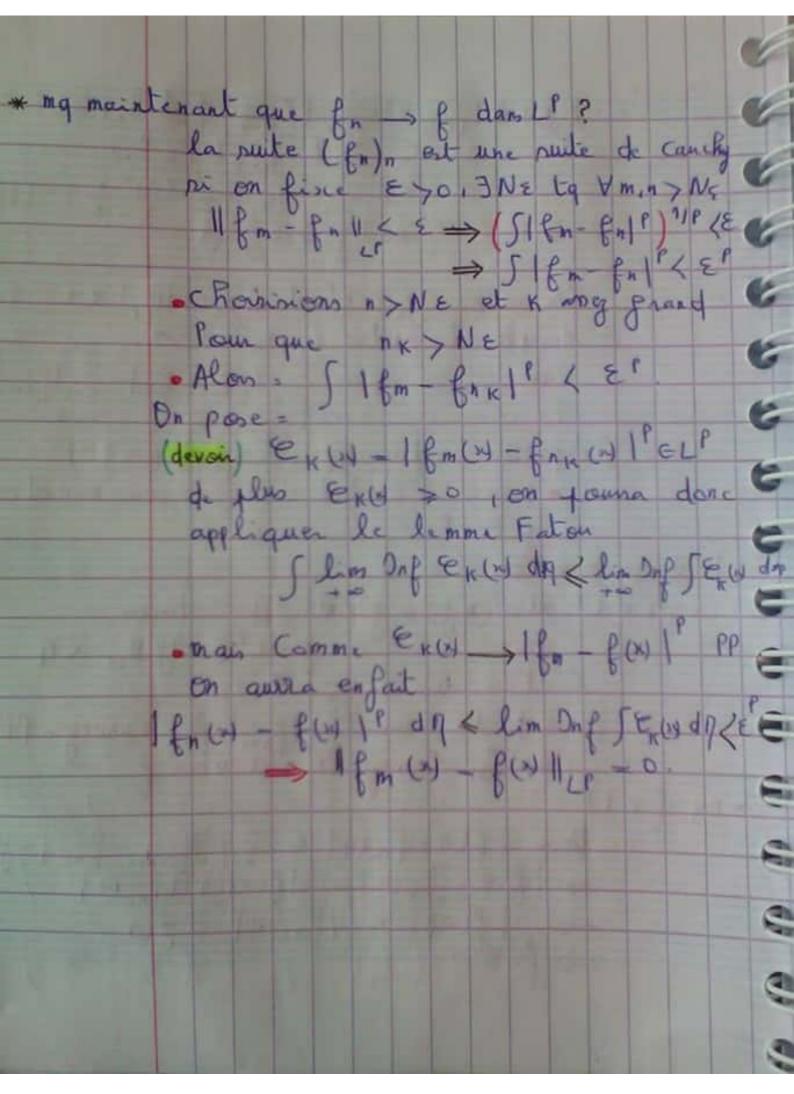


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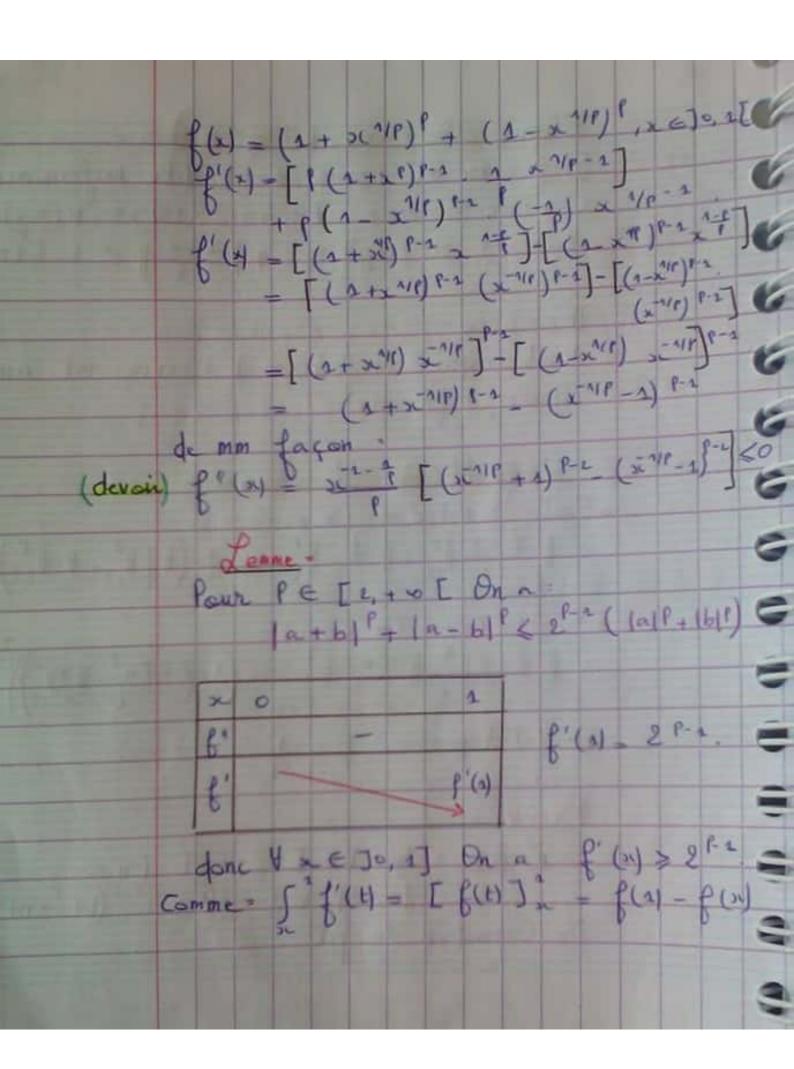


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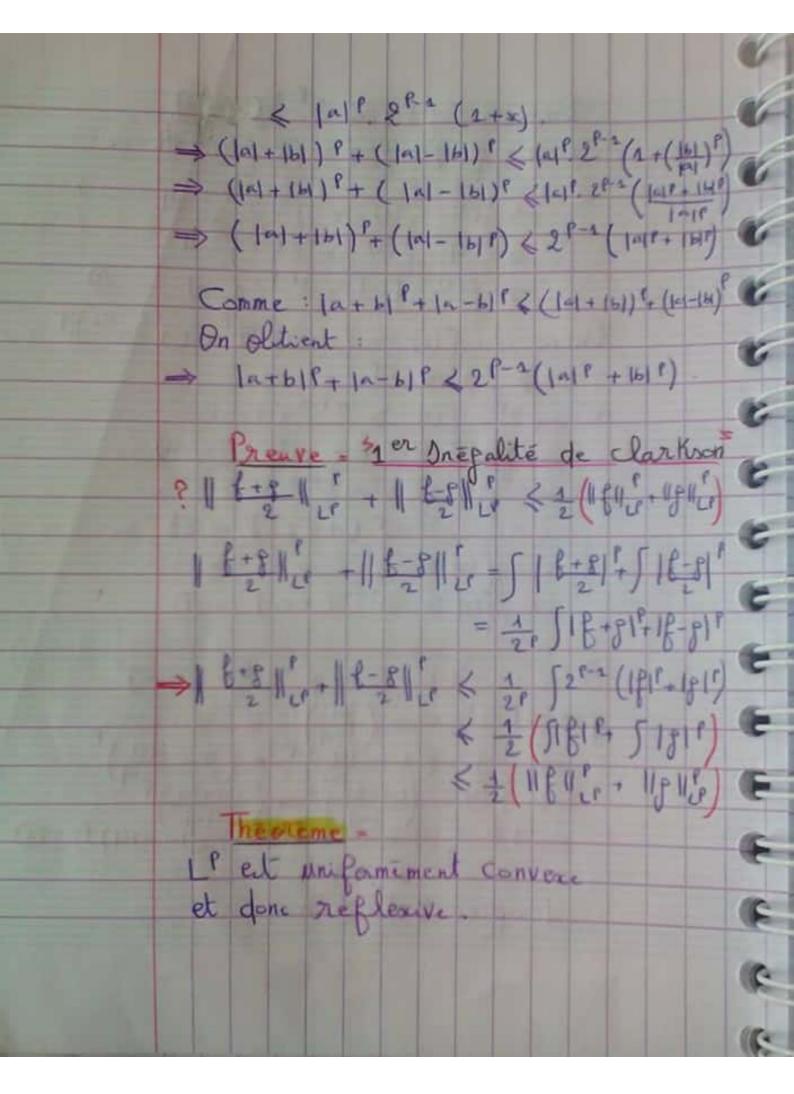
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Espace Uniformement Convence = Def un ev norme X est dite uniformement Convexe si on a : Y =>0, 38(2)>0, V(x,y)ex 1|x1|= ||y1|=1 et ||x-y|| > E > || x+y || < 1-8(8) lheoneme = tout espace uniformament convenient est un espace reflexive Inépalité de clarkson = · Sait & EP Loo On a 1 6+8 11 +1 1 +8 11 < 1 (1 811 + 1911 P) · Si 1662 On a : 1 8+8119+11 8+811 (1 (1811 + 11811 P) 1-2 tel que = 1 + 1 = 1 Preuve -On Considére la fet:



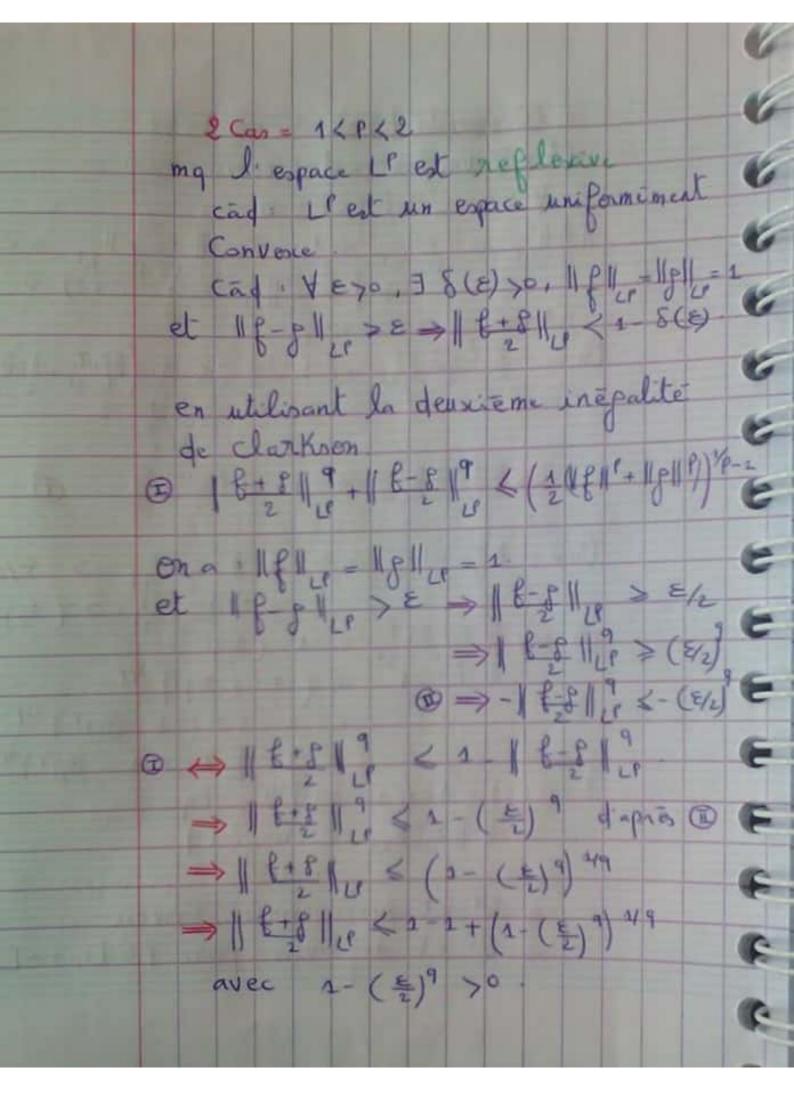
On a :
$$f(x) < 2^{P-x}(x+x)$$

Car : $f(x) - f(x) = \int_{0}^{x} f'(t) dt$.
 $\Rightarrow f(x) - f(x) > \int_{0}^{x} f'(t) dt$.
 $\Rightarrow f(x) - f(x) > \int_{0}^{x} f'(t) dt$.
 $\Rightarrow f(x) - f(x) > \int_{0}^{x} f'(t) dt$.
 $\Rightarrow f(x) - f(x) > \int_{0}^{x} f'(t) f'(t$



Demonstration -
L'est uniformement come
116 11 - 11911 - 2 et 116-911 = E 1 Cas - P E E 2, + 2 C = 2 C = 2 On a 11 6+8 1 11 2 2 4 4 4 4 4 4 4 4
1 C P = 1 (P & 1 & (E) ?
On a 11 ft 8 11 f 11 P 011 P 1 1 1000 0 100
On a 11 8+8 11 c + 11 8-811 c < 2 (11811 + 11911 c)
$\frac{1}{2}$
11 8+5 11 6 2 - 18-8 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ona. 118-811/2 > E = 18-81/2 > E/2.
(E) 1 1 + + P 1 () () () () () () () () () (
1 + F L 2 (1 (E) 1P.
2-2+(2-(5))11
< 2 - [2 - (2 - (2) e) Ne)
3 8(E) - 2- ((2- =)1) 11P tq
11 6 7 8 1 LP & 2 - S(E)
= 1º est uniformiment convexe
I LP est reflexin pour P = [4, +-[
Coonned by Com Coonner

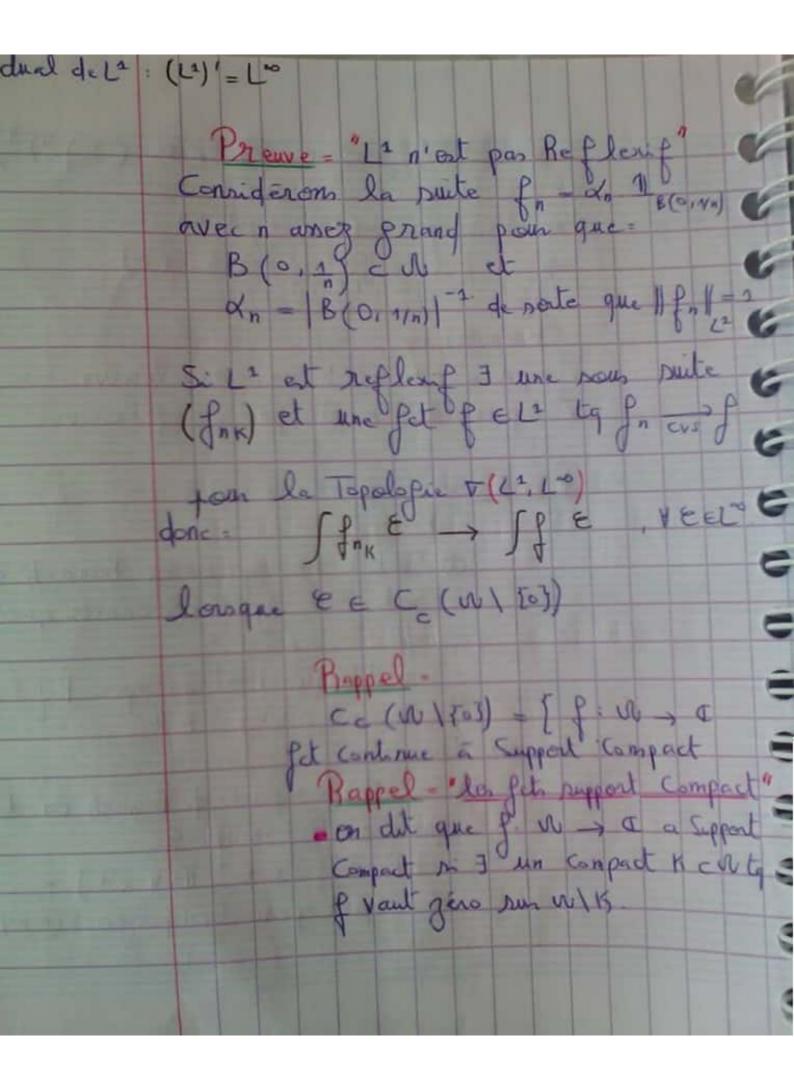
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-> 11 8+8 11 c < 1- (1- (2- (E) 9) 9) donc 3 8(E) = 1-(1-(E) 9) 49 => 11 = 18 11 (= 1 - 8(E) L'espace L' n'est pas reflessive. L'espace L' n'est pas reflessive Preme -Bappel = Don't E un espace de Barach di noit J l'injection canonique de E dans E". SSi = J (E) = E". @ Soit E un espace de Banach on dit TREE Ext Beflorif Ssi.

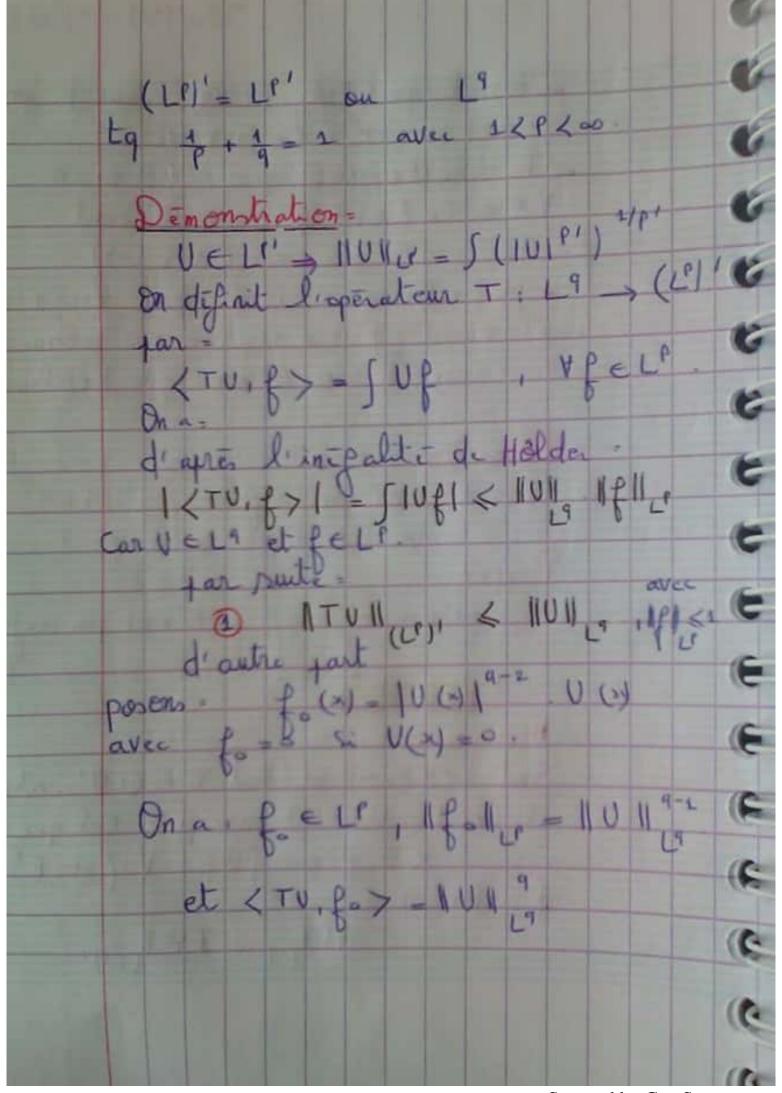
JBE = [x E E | IN 1 (1). et compact you In Topologie I (E, E')

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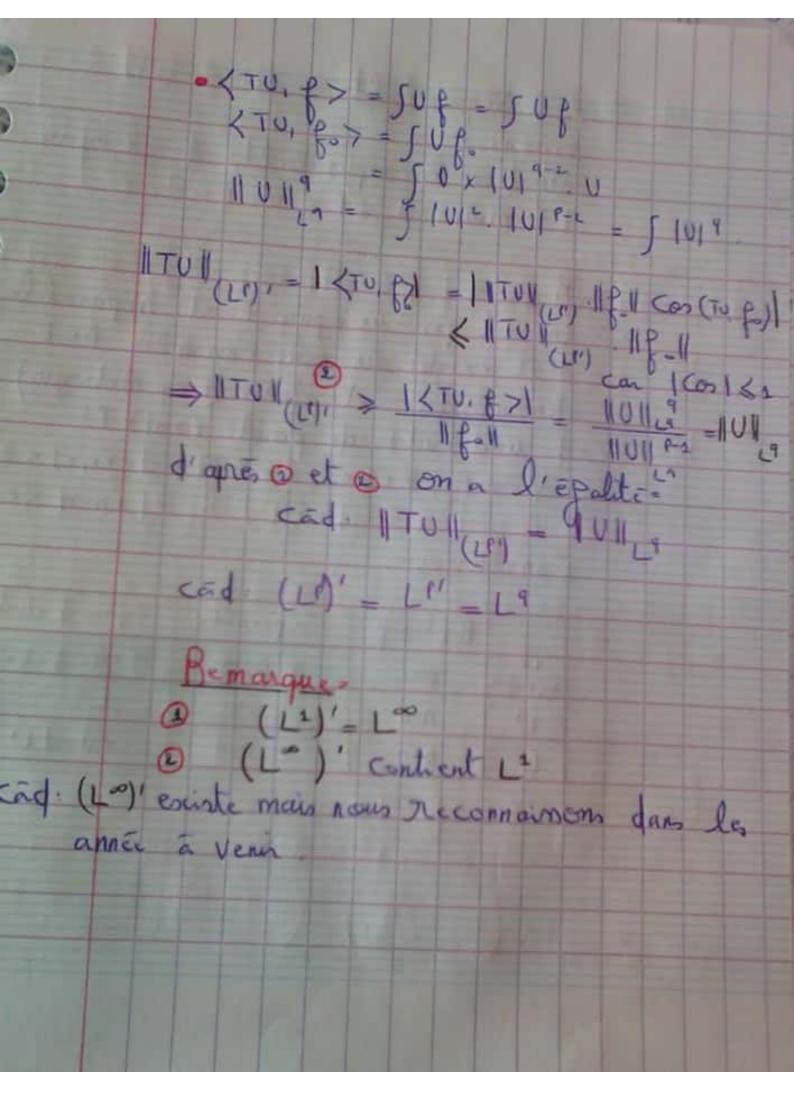


On part que I for & = 0 1 pour K anses grand car & E Cc [w/ [03) Il résulte de 1 que : Sfé =0 YEE Cc [ul [0]), on obtient: P= 0 PP sur Cc (VU \ E03) · par ailleurs Si l'on prend E - 1 dans 3 il Vient JP = 1 ce qui alound > I espace L2 n'est par Reflerif Remarque = On a La n'est pas reflexif et (L)'_L' Si E n'est pas reflexif = E'n'est pas reflexif "Dualité" Theoreme Soit 1<P<+ - , et noit & E (LP)', alors il existe UE L9 unique tel que. KELF = RUB ABET de ples on a: 1101, 9 = 11 811(19)

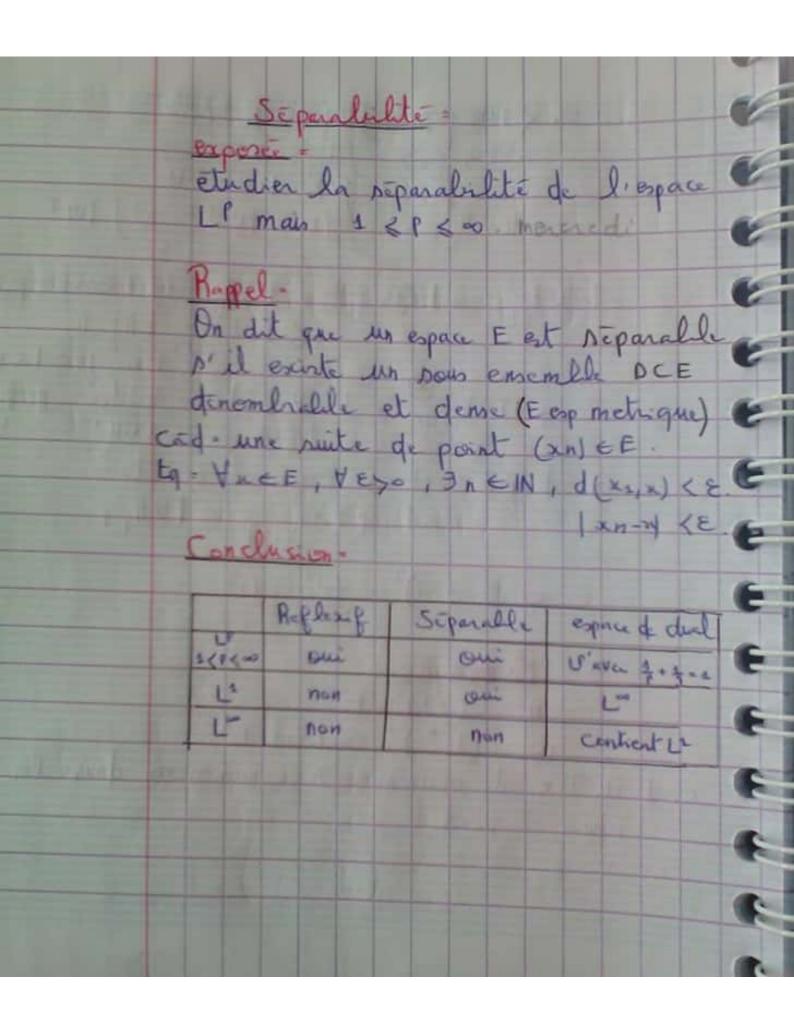
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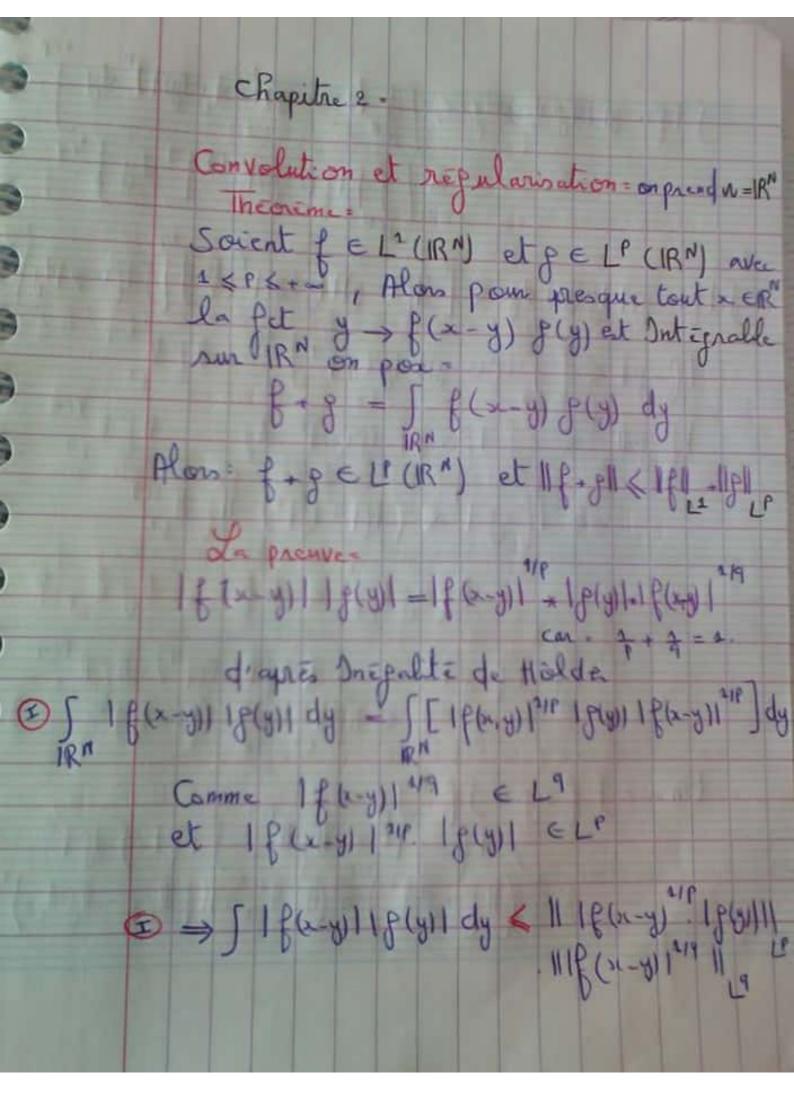


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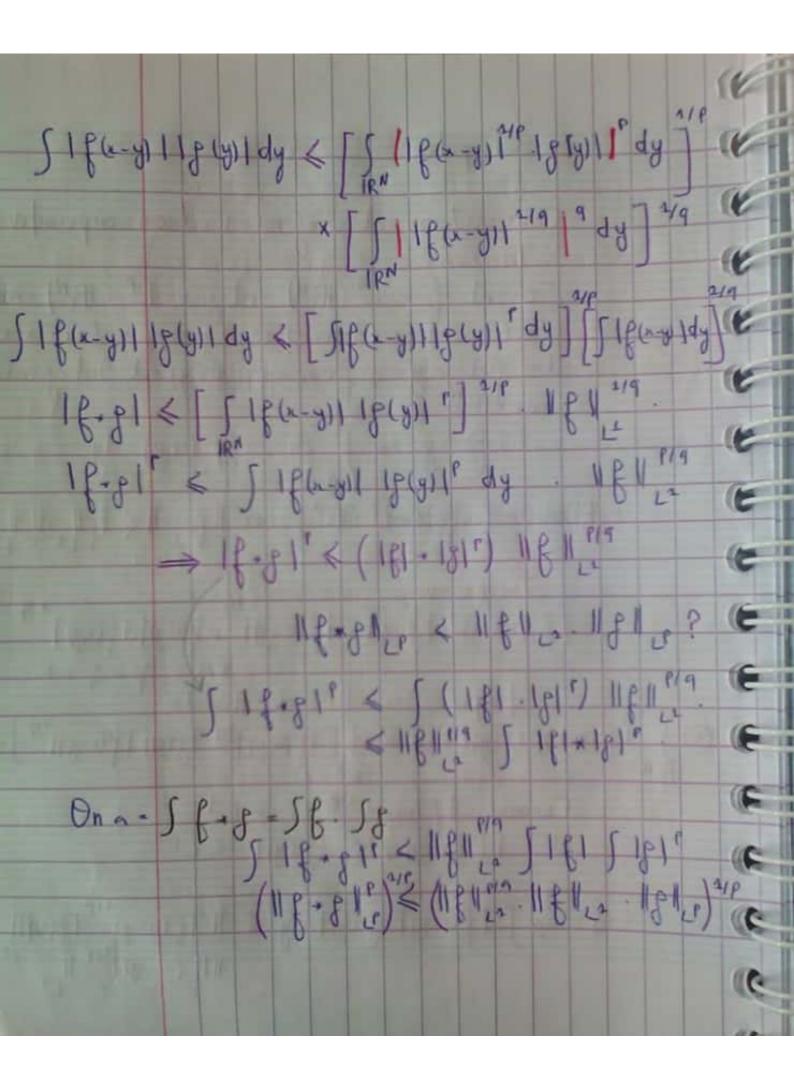


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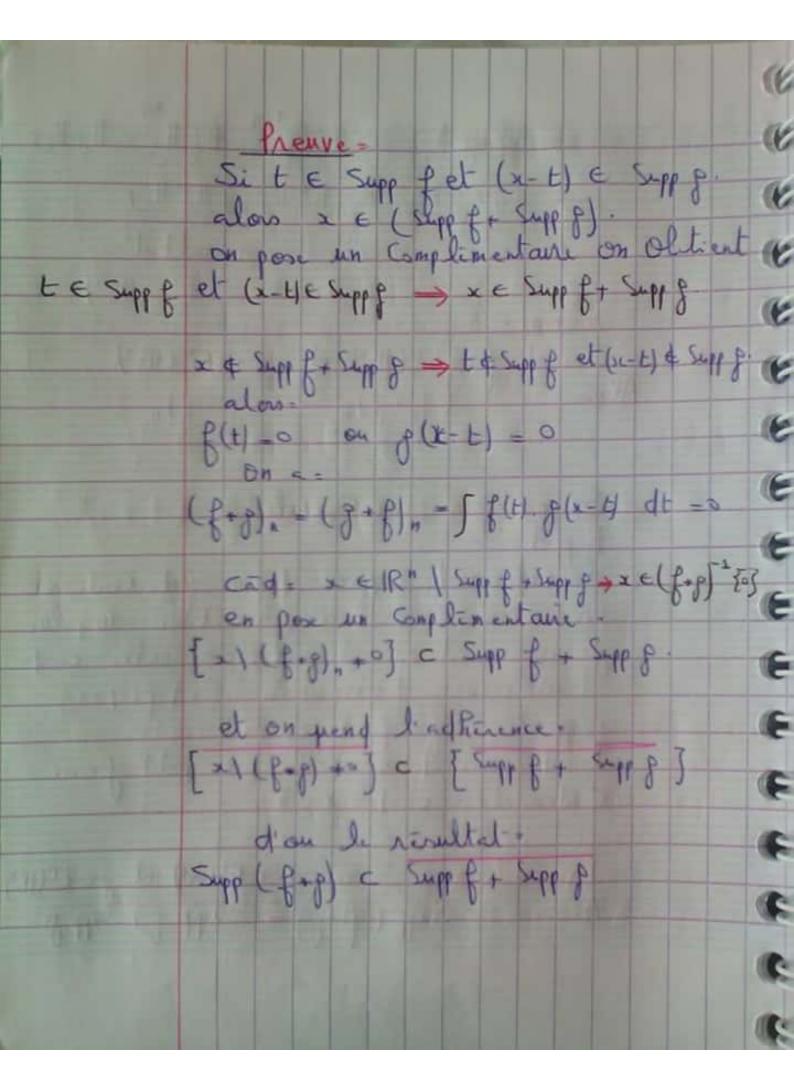




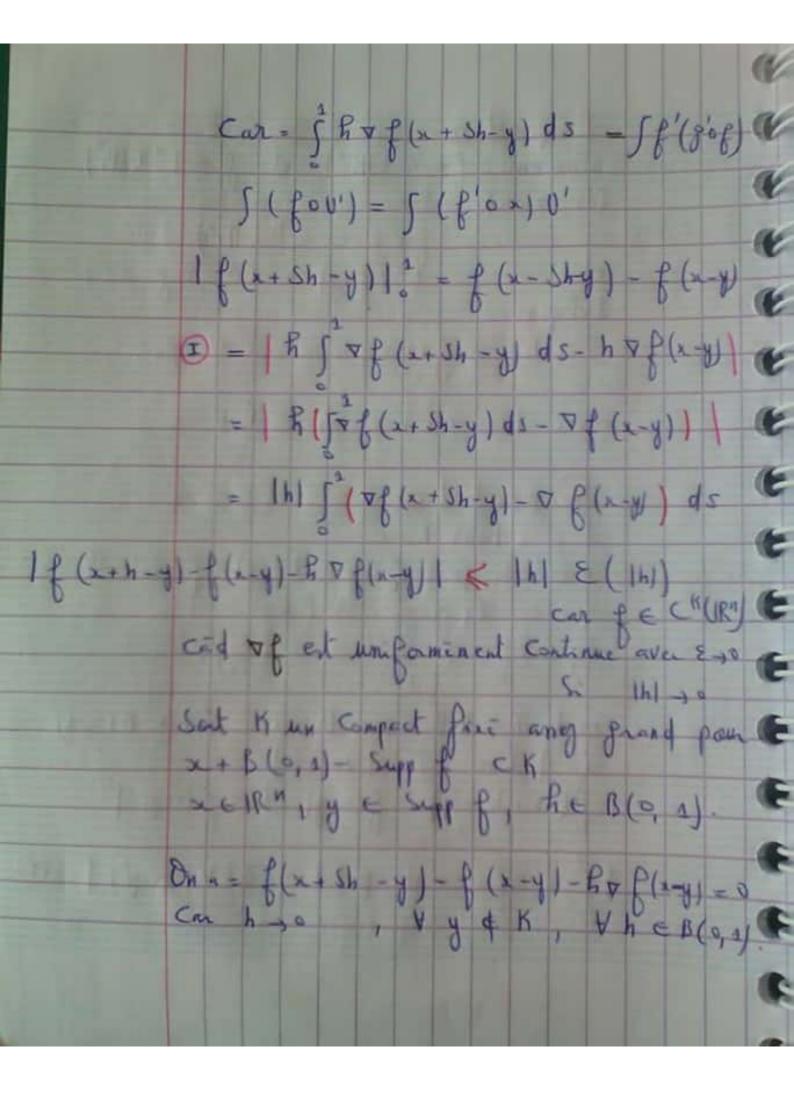
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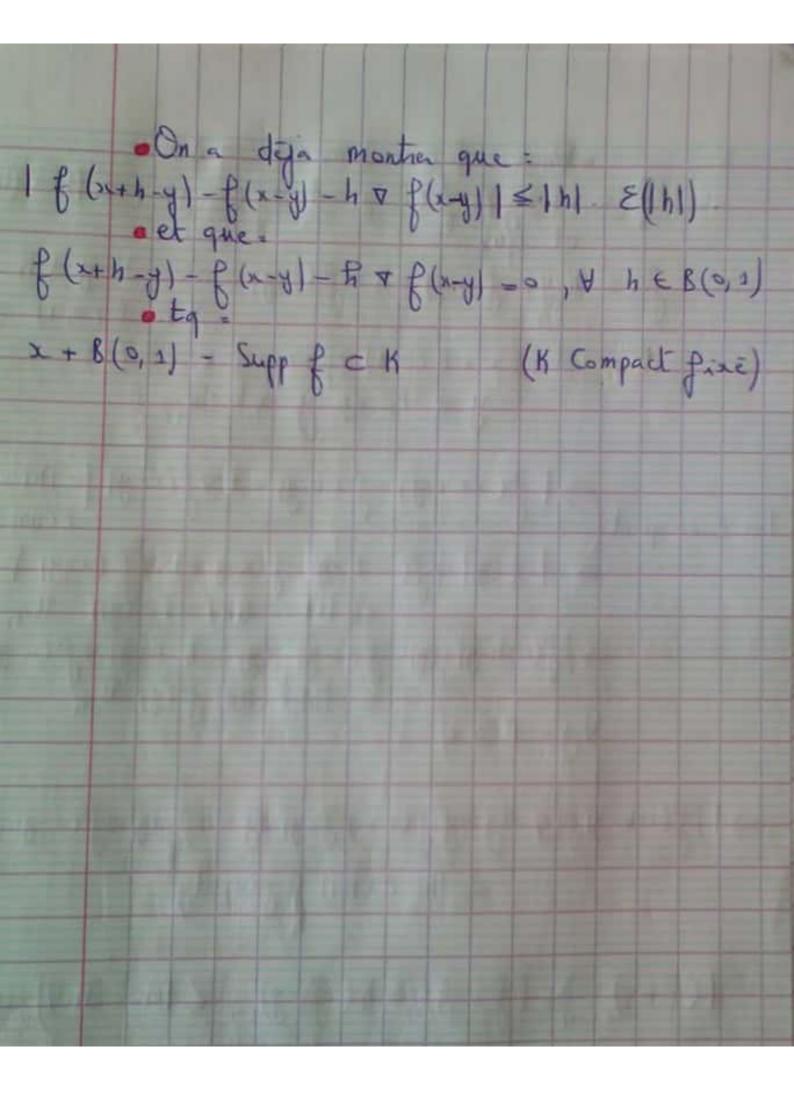


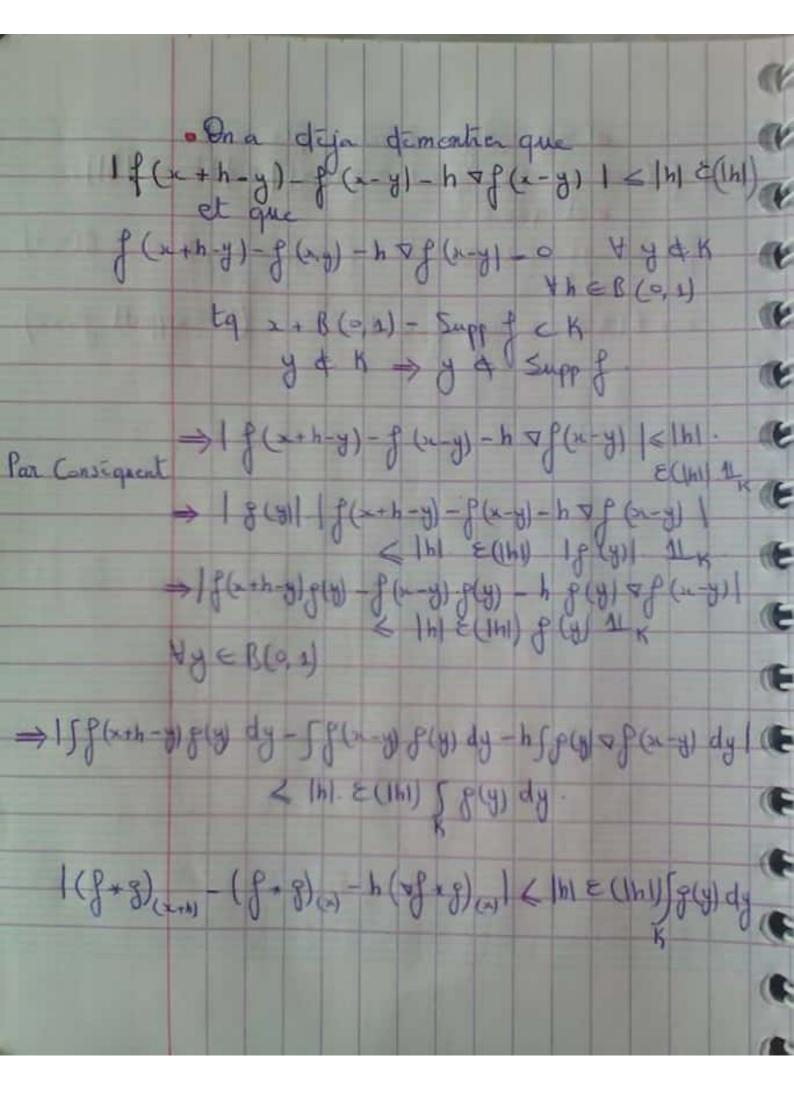
> 11 f + g 1 Le ≤ 11 f 11 L2 11 g 11 Le d'on le résultat Soient & E L2 (IR7) et 9 E L2 (IR7)
Alors: (6.8), - (9.6), Support dan la Convolution = la notion de support d'une fet Continue est Connue c'est le complémentaire du plus grand ouvert sur liquel fort nulle cadsupport f= [x1 fcm +0]. l'adhènence de x est le plus selit ferné Contenant X and X a X Proposition = Somet & EL'(IR") et g ELP(IR")
Alon = Supp (f+g) & Supp f + Supp g



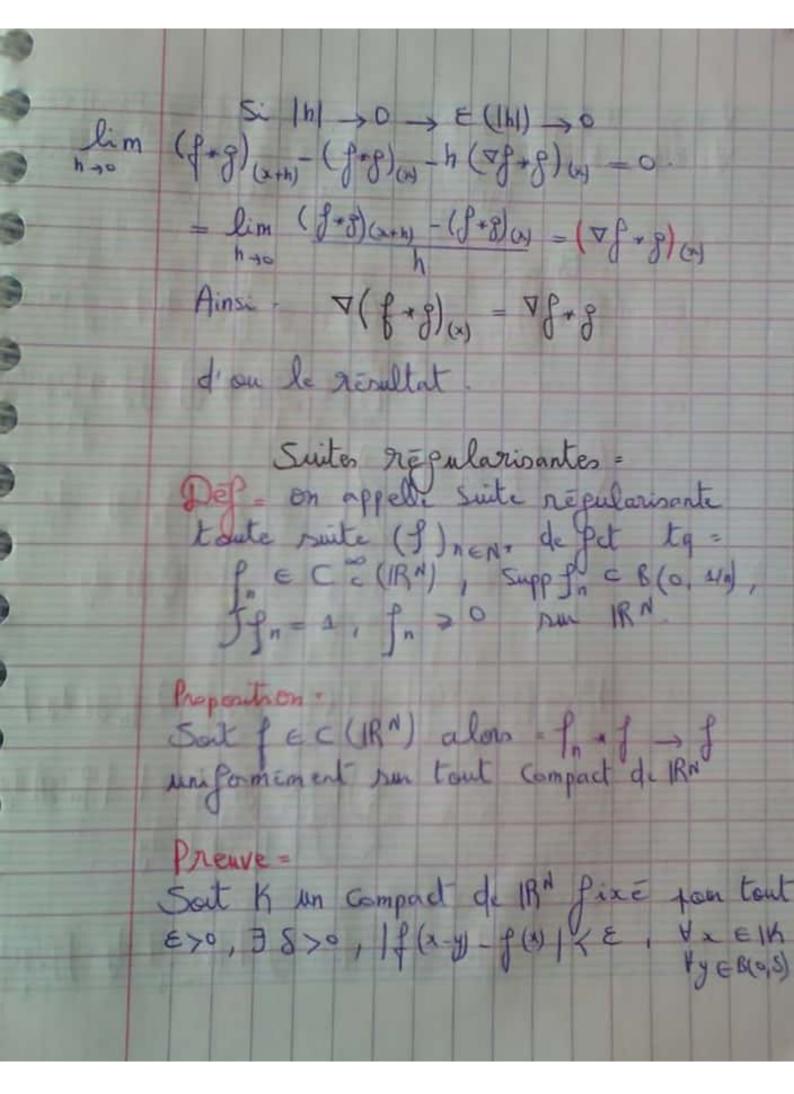
Soient fe C"(IR") et g e L1 (IR") (K entier) alors = telque = avec |a| = d1 + ... dn < K Demonstration: montrom que f. g est différentielle et soit FER" avec 1/1 = h & B(0,1) (to destine a Tend vers 0) 1 g(x+h-y)- g(x-y)-h v f(x-y) 1 1 f R of (x+sh-y)ds - h of (x-y) 1 (1)

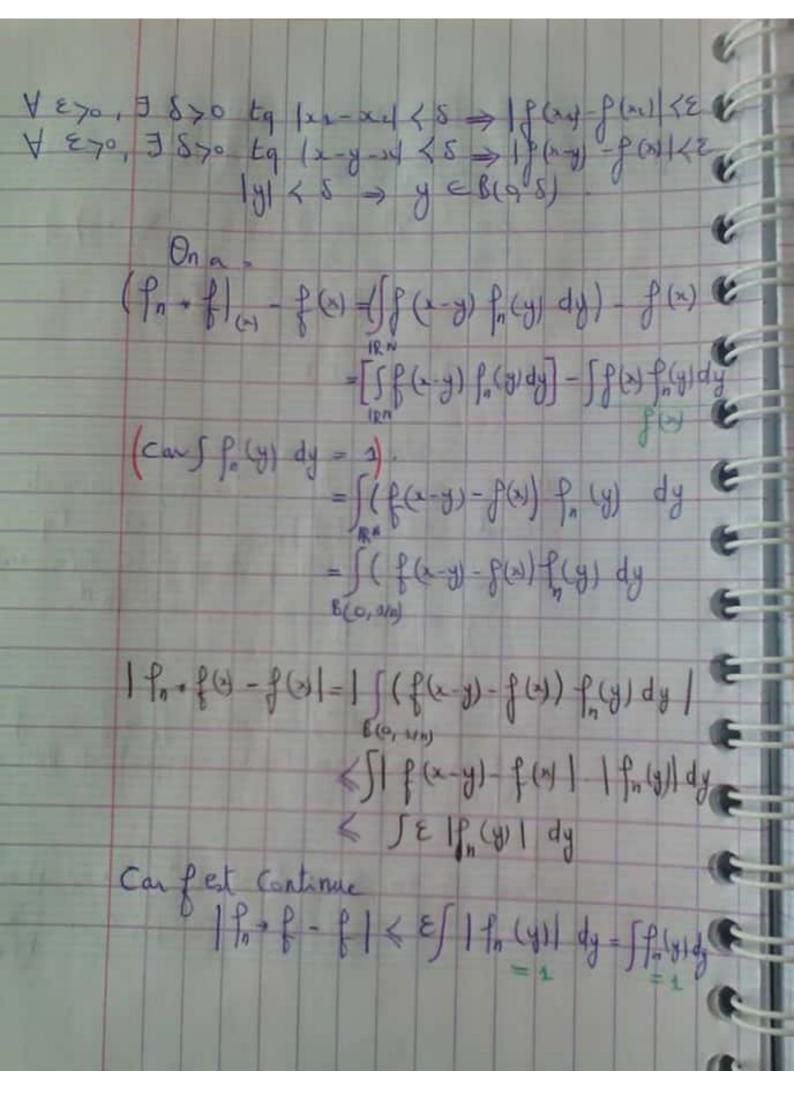




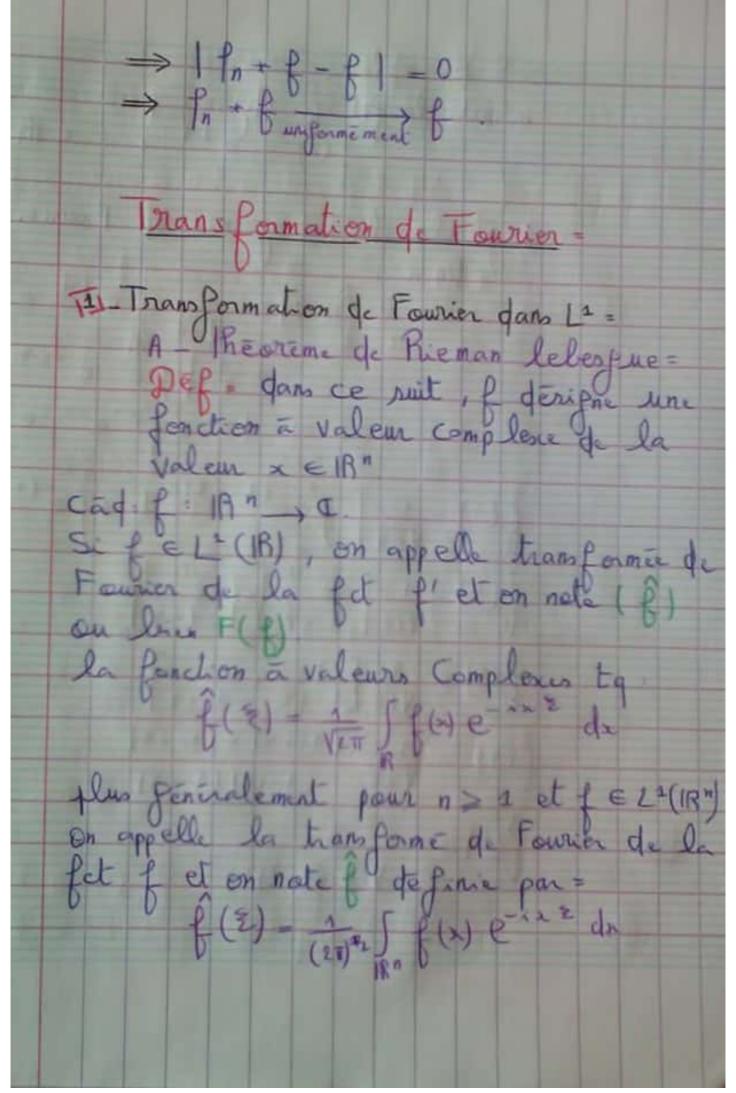


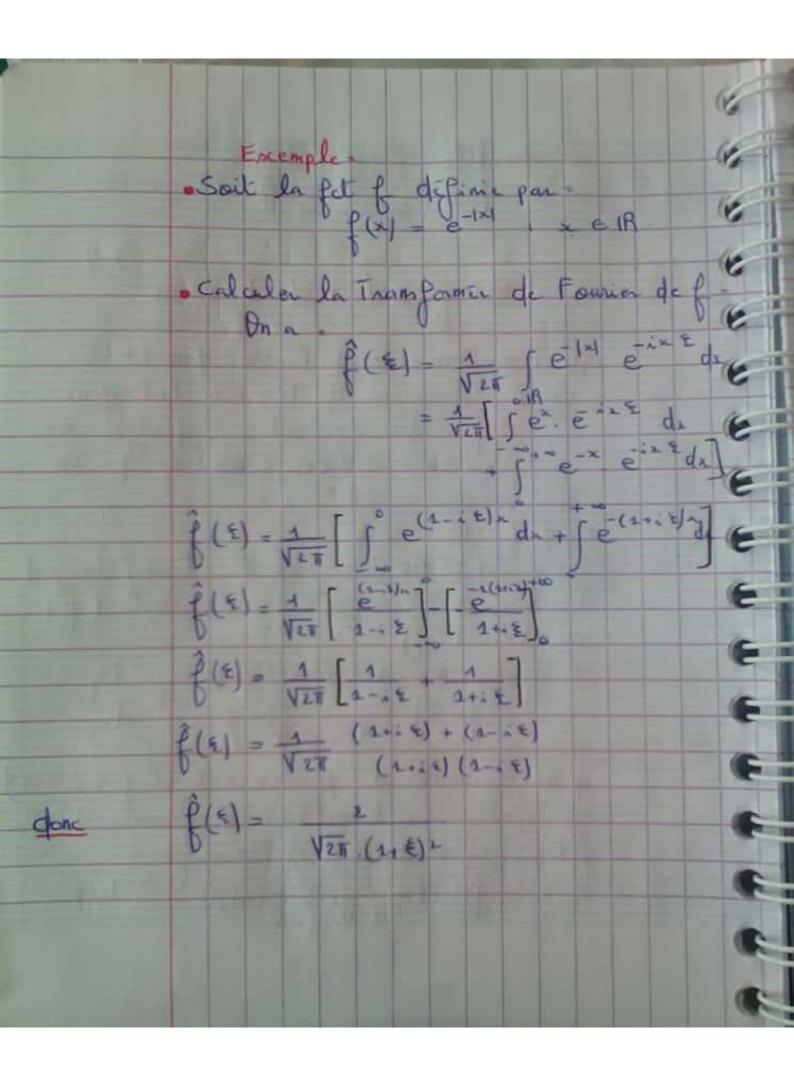
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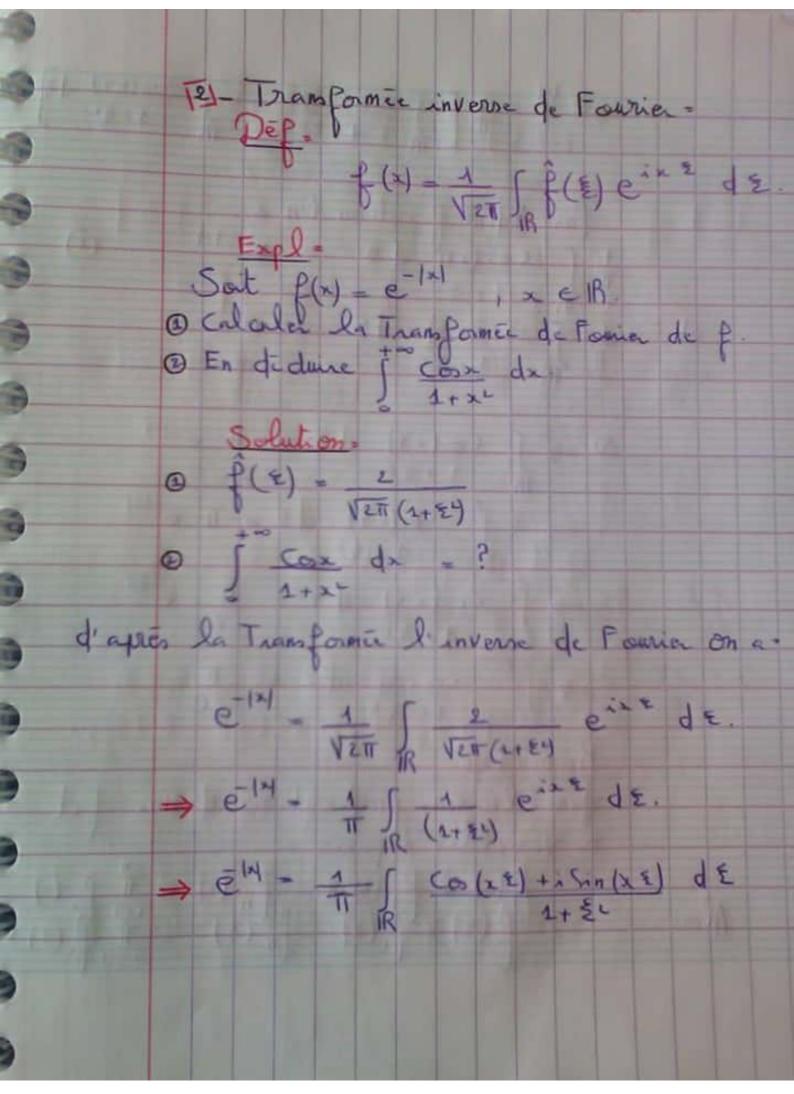




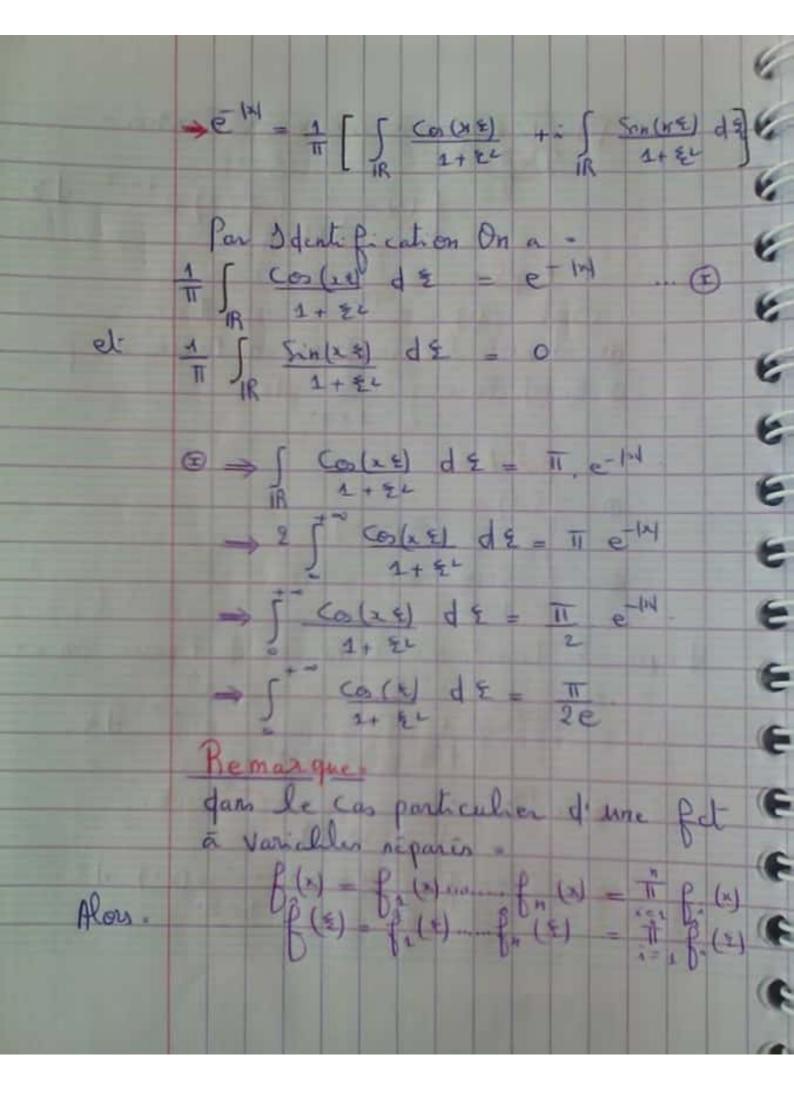
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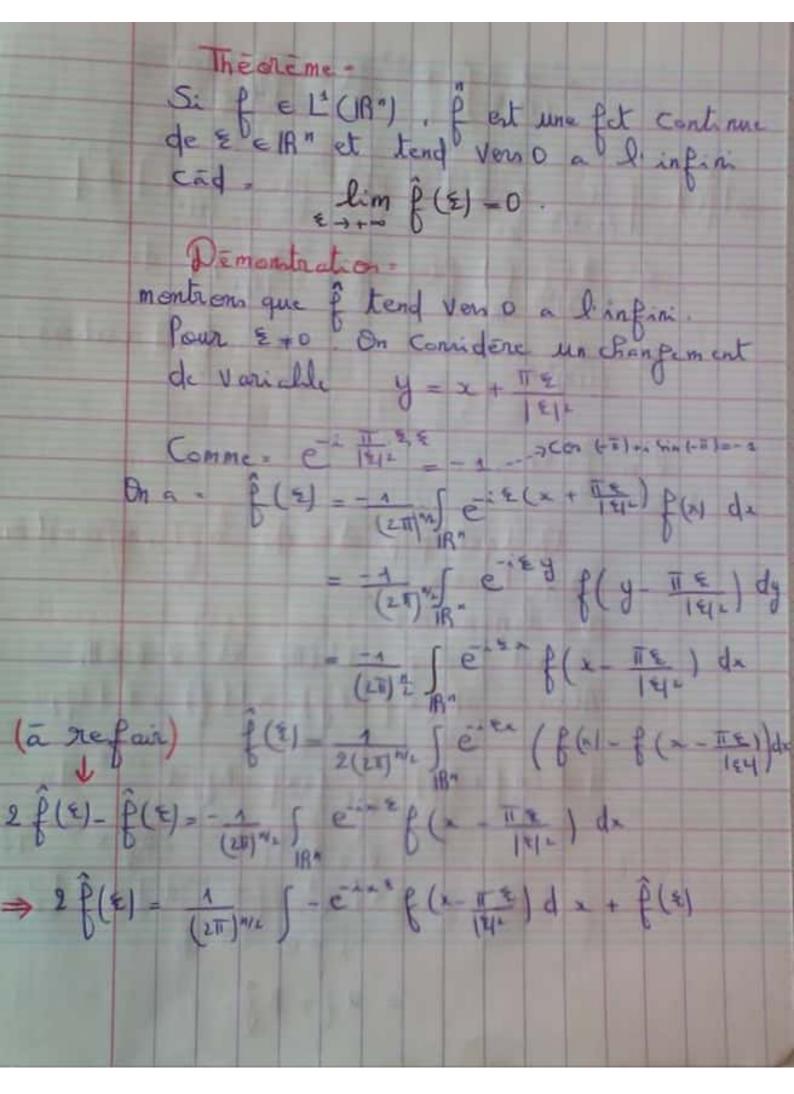




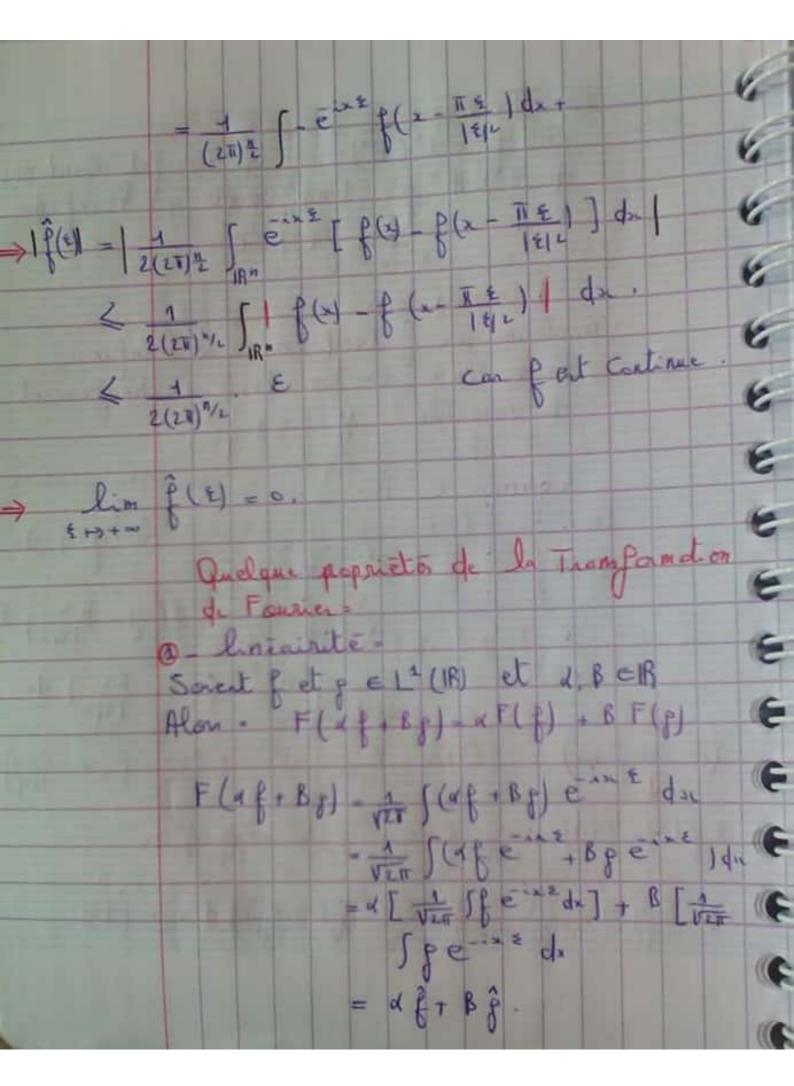
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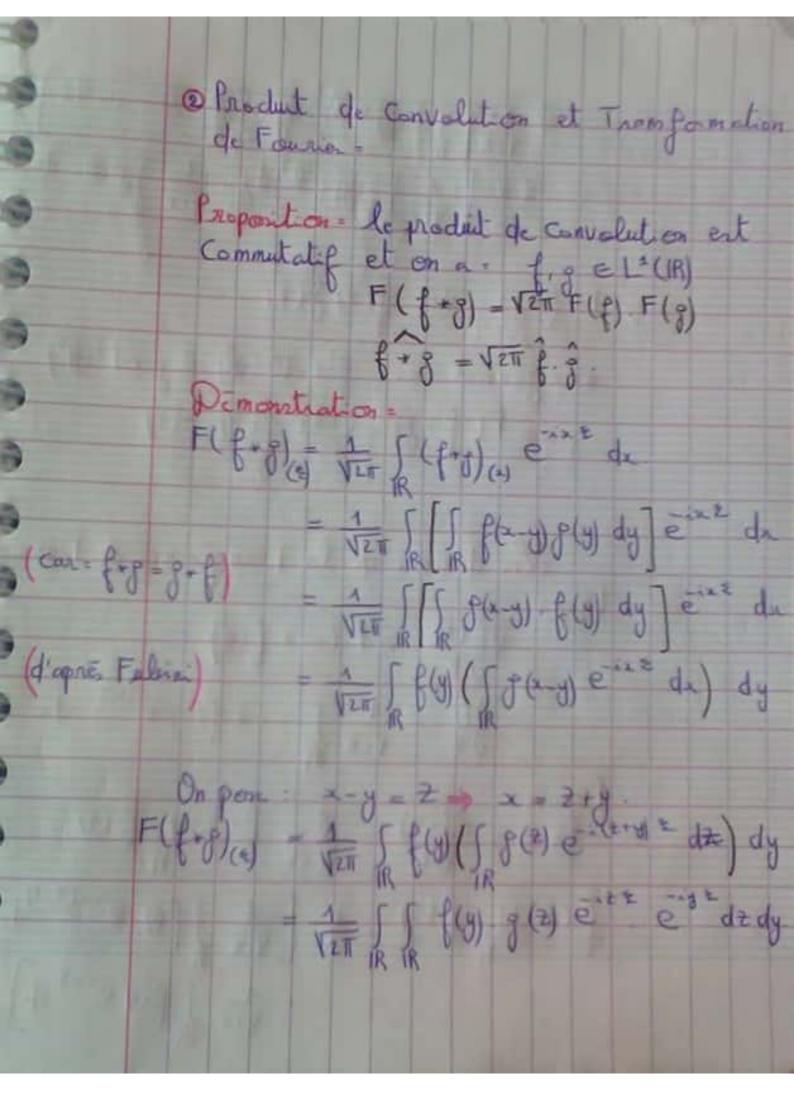


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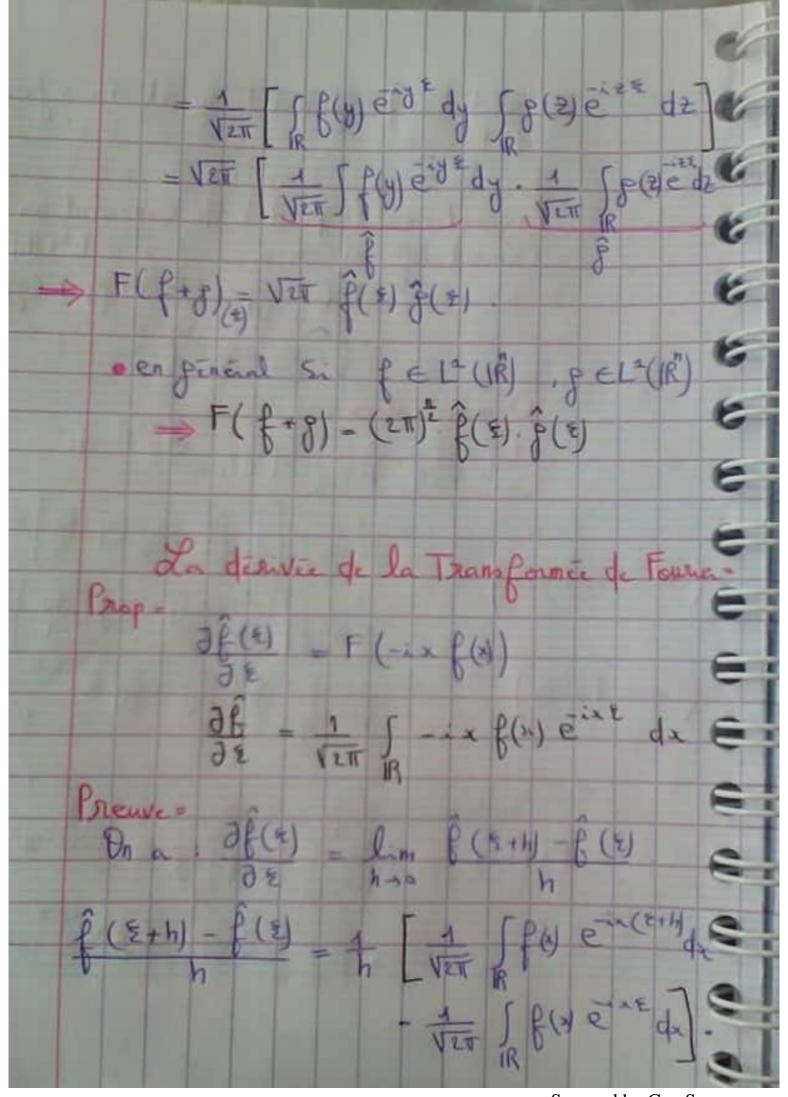


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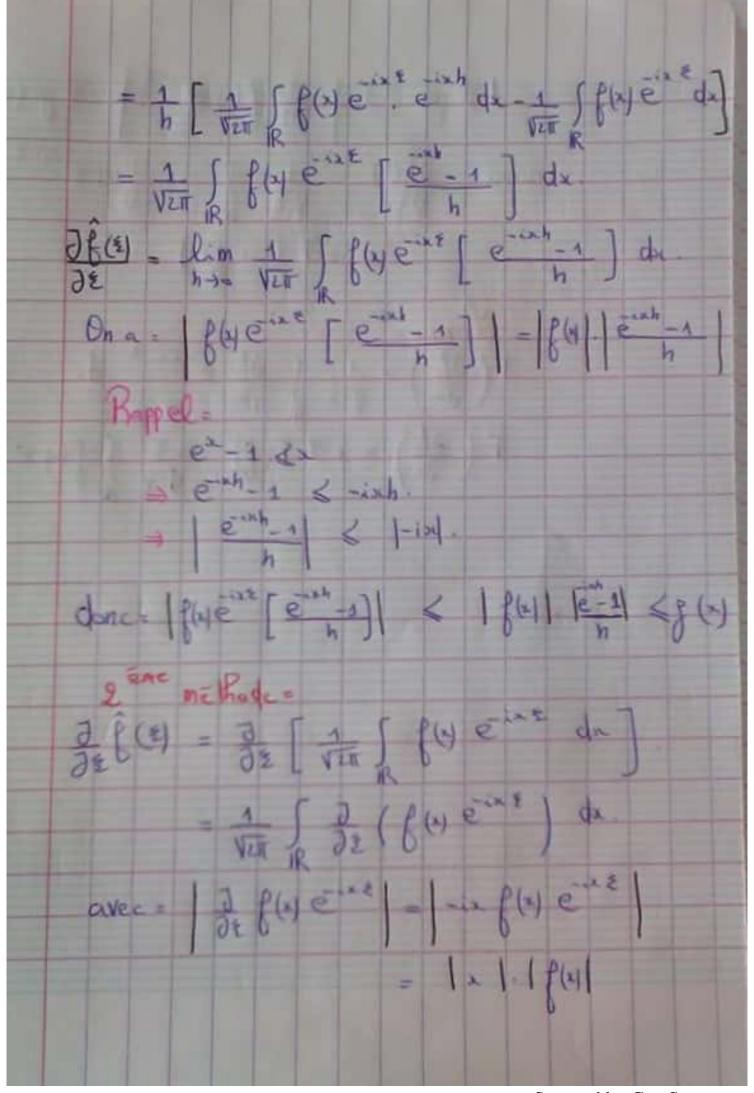




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telque: 3 8 (x) e == 1 & 8 (x)
ainsi $\frac{\partial \hat{f}(\xi)}{\partial \xi} = \frac{1}{\sqrt{\epsilon} \pi} \int_{\mathbb{R}} -i x \int_{\mathbb{R}} x e^{-i x \xi} dx$
Lemme.
$F\left(\frac{\partial f}{\partial x}\right) = \frac{1}{\sqrt{2\pi}} \int_{\mathbb{R}} \frac{\partial f}{\partial x} e^{-ix^{2}} dx$ $F\left(\frac{\partial f}{\partial x}\right) = i \sum_{k} F(f) = i \sum_{k} \int_{\mathbb{R}} f(x) e^{-ix^{2}} dx$
VZTT /R
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