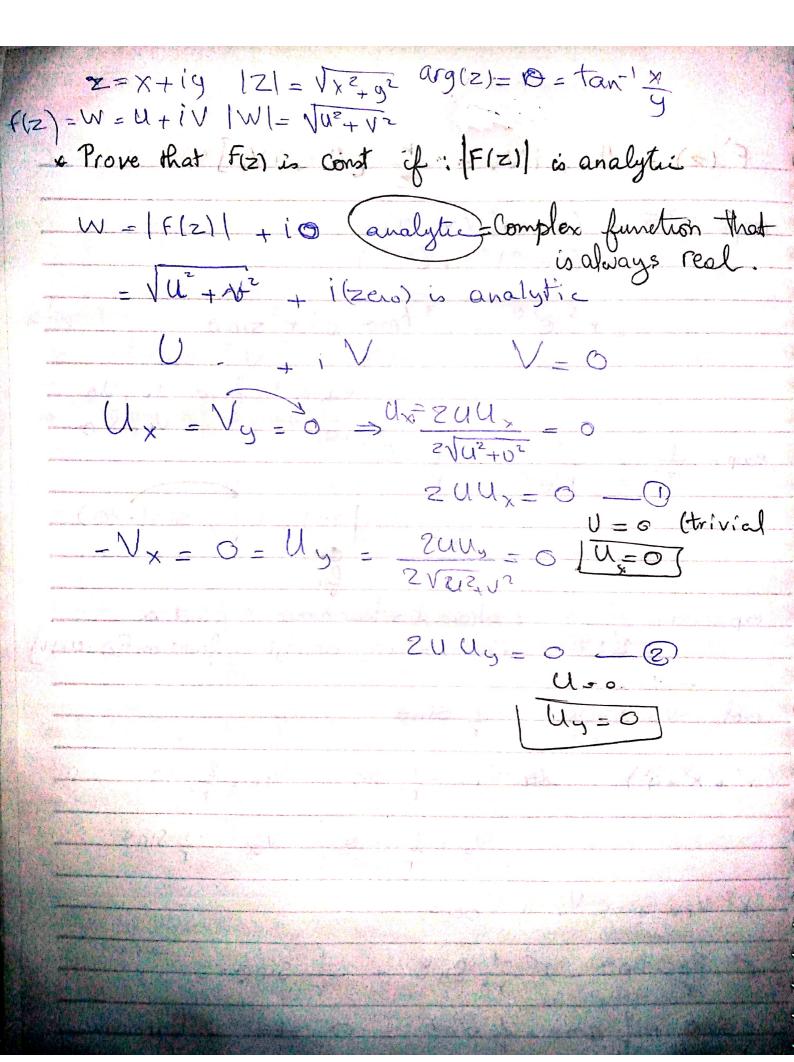
· Cauchy Rieman in polar:	
Ly - Vx VV	Lr = Vo
* Laplace. Uxx + Uyy = 0	
Uxx + Uyy = 0	x 2 arr + rar + 400 = 0
Discuss differentiability:	
$F(z) = \frac{1}{z} (zn \text{ rectangular}) z \frac{1}{z}$	1 xx-19 X+19 X-19
	$=\frac{x}{x^2+y^2}+l\left(\frac{-y}{x^2+y^2}\right)$
Lo Finding Ux & Uy & Vx & Vy is hard	
+ \$ you 11 have +	affrontiate a quartient
in Polan Form: $S(z) = \frac{1}{z} \cdot \frac{1}{re^{18}}$	
= - [Cos (-0)	+ i sin (-0)]
: + (Coso - 1	Sine]
4= + coso v=+ sino	U, V are continuous
Ur= -1. Coso Vr = +2 Sino	on x -plane except $r=0$ $\Rightarrow (0,0)$
No = + sino Vo = + coso	freshore

F'(e) =
$$U_{x+1}iV_{x} = \frac{r}{Z}[U_{x+1}V_{x}]$$
 $v_{x+1}iV_{x} = \frac{r}{Z}[U_{x+1}V_{x}]$
 $v_{x+1}iV_{x} = \frac{r}{Z}[U_{$





section to: Prove that F(z) must be constant of = 15(z) - Const F(z) - Cl + iv sol: for this to be true use med the derivatives to equal zero (derrivative of a constant = 0) F(z)=C, = U+iV = Cz+iC3 Where U=Cz N= U3 Notable model Ux=0= Wy Vx=0= Vy 5(z) = u+1v is analytic ... ux= vy _ 2 8 Uy=- Vx _ 3 harmonic Uxx+Ugg=0 2 VU2+V2 - C Vxx + Vy9 = 0 U2 + V2 = C2 __ D diffe wr.tx > 2UUx + 2VVx = 0 UUx+VVx=0 -> (1) diff wirity => Ully + VVy = 0 - 5 From CRins (1) - UVx + VUx = 0 - 6 W*U+¥#6 : uz Ux + UVVx - UVVx + V'Uzo U'Mx + N2Ux = 0 => (U2+ V2) Ux = 0 Ux= by =0 a2 + V2 = 0 Uy= #1/x = 0 trivial solution : U= Ce N= Co "special case"

حل اسطم من اللي بدور علي

-0

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: 5(Z)= C+ i S3 = C1