Algebrai	n topology
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11- Sept	-2023
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Rep (Dellanpre O Willer 3 Hatch.
21	- 9 1 +1 61 1 7
Plan (D Fundamental group & Homo logy Theory
	3 Cohomology Theory @ Poinces duality
Ohl f	Fundamented group
	$Q \times Q$
a.	X. Y Top spenes. Prone X - 24 (homeomorphic)
	Attempt 1 conti nitto conti inverse?
0	4 _ 2
A.	7
	A4+ , , k 1
	Attempt 1 ———
	14 *
	Attempt 2 Topo logical invariant
	0.4 m
W	. S 7 /R 2 pg. Using competners.
31.	I Homotopy of paths.
	f.l.) f. f': X - Y continuous f = f' (homologie) iff
	f F f (homologie) iff
	$\exists F: X \times (0,1) \xrightarrow{T} Y \text{ continuous} X \xrightarrow{T} Y$ $(x,0) \mapsto f(x)$
	3 F. M. Continues X
	$(x, o) \mapsto f(x)$
	$(x, 1) \longrightarrow f(x)$
	Ex Ten manto I in a it to 1.10 call to mentain
	In part, & is constant. we call it will-homotypic
L	2 f. 1.1.2 f. f'are paths with f(x) = f(0), f(1) = f(1)
4	
	i.e. b.f: [0,1] -> X. Whenever f \(\frac{t}{2} \) f', f' are path lums typic,
	To the second of
	f, f are path turns typic