	REZOLVA	RE EX	ERGIT	îi			1	14343	3	203	Sec.	300	29	
					-		- 4							-
a) Ec. omegene			<u> </u>	F) =		0	= 1	× 1	9 -	-3	-	7 -6	4	
$\chi' = \left(\begin{array}{c} t + j \\ \chi - t + j \end{array}\right)$	- 12	3 2							0			1	1	
¥ = \x - \$ +	2									33.		3	1	
ri 1 t	+1 at	+ 6 x ,	4C)	-	a=1	1. =	0	. /	, _	,		Ž.	1	
x'=g(.t	- £ +.2 ×2	+ + B ×	+1	0	< = 1	, B	-	.1.	r=	2		30		
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Culcularu ap							(n -	= (3	mel		S Y		0	
Rezolváur siste	une St+	1 = 0		=> /	to=	-1	.(-		W)	1	3	M	2	
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Selvin looker all a	enteral la	-	4 1	= + 4	1 3	25 33	- 6	1	3 =	-		77	70	
arguinoure out a	your accept a	2 = 1	10		1			1				Ç.	1	
Schiubare de a	F135 (3)	7=	t to	- + +	5	to b	1	Ž.	3			4		
x(t) = y(s(t))	dy(s(t))	1	5	1.5		1				3		4)	
10	$\frac{dy(s(t))}{olt} =$	(-	241	42			4 4	3						
	oct	y -	571-1:	Tol 1		1		123	4	325	+	13		
() \ 2 de		2/22		2	100000		,			Ol.	()	- 31		
$\left(\frac{5}{y-s}\right)^2 = \frac{dy}{ds} \cdot s$	$(t) \iff$	de	2/	24 12	-) n		12	=	79				
9 3		30.	3 (5-1)	JAN-	(5	-1)	+ 10	ds	(4)	3		
y				,										
$\frac{y}{s} = z \Rightarrow y = 0$	sz == y(1)=1	≥(1) C	=) 01%	1 / A	-211	,	+ 2	(3)		130		6.	
No. 1)			ds										
D. 2 (A) + Z(A)	(2 1/2	> 1.2	+2 :	= 1					13		A I	1		
							1 74	-	£ . 3		=	1	-	
7 = 1 -2(2-	-22+1)+1	= 8	¥2-23	2+1.		12	cls		3 .		7 8	100		
$Z = \frac{1}{3} \cdot \frac{-2(2^2 - 1)^2}{2^2 - 1}$	22+1	1	-2(2	2-22.	+1)	2	1	- 6				J3		
								(=	16	-	()	14		
· solicti station	nare: \$1	2) =	Z + +	222 -	2+	1 = 0	0			Α.			-	
$f'(z) = -3z^2$	+ 10 7 1	24	1000	1	3 5			1		U3		20		+
= -322	+32+2	-1=	- 32 (2-1) + (;	2-1) -	(2	1	36	1-	3 -	-)	
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9(1) = 1.2	THE LANGE	393	0313) B 393	5 -33	رواول	8	34		23	9			
					1									
$\varkappa(k) = (k+1)$	20.							-		-			E .	
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1-2(2-1)2 d2	= (4)	1-	2 2	+/	0/2 =	100	1 =	lu	1 -	P	-) =	2 -	9
1-712-112	<i>Z</i>)	1-2	722	-2+1	(11		n	-0 (5

6) Puol lema Candry. tz'-z-luz'=0 x(1)=1 $\begin{cases} t = u \\ \dot{x} = uv - luv & u > 0 \\ y = v & u \in \mathbb{R} \end{cases}$ x = tx - lux y = dx =) dy = yodt d(uv-luv) = v.du vdu + (u-+) dv = vdu (u-+) dv =0 · u - = 0 =) u = 1 =) x = 1 - lnv $\begin{cases} x = 1 - lu \frac{1}{u} \\ t = u \end{cases}$ solutia su formă parametrică $\mathcal{X}(t) = 1 + lu(t)$ * (1) = 1 +0 =1 -) verefica ple Caudy. x(t) = 1 + lu(t) -solutio a ecualici · du = 0 -> 2 = court 1 t = u 1 x = e.u-luc *(+) = e +- luc x(1) =1 (=) x(1)=c-luc c-luc=1 -> c-1 solutie f(c) = c-luc = 1 du c = c -1 (=) c = e c -1 $\varkappa(t) = t - let 1 = t \Rightarrow \varkappa(t) = t$ Oles: pl. Carecly are dona soluter) x(t) = 1 + lest) re(t) =t

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6 1 sa se studicae existenta si unicitatea volutier pt wunifoarde ec. dif;
         a) x'=3x3 +1, 1ER
       TEMA b) \chi' = g(\chi), and g(\chi) = /\chi \sin \frac{1}{\chi}, \chi \neq c
 EX. 5. REZOLVARE
                                                                          \begin{cases} \chi' = f(t, \chi) \\ \chi(t_0) = \chi_0 \end{cases}
             (9_i)_{i \geq 0}: 9_0(t) = x_0
                                                                   \psi_{i+1}(t) = \varepsilon_0 + \int_0^t f(s, \varphi(s)) ds, \forall i \geq 0
                                                                                                                                to=0, x0=1
            \alpha) \quad f(t, x) = t + 1 - x^2
             40(t)====1
               \Psi_{1}(t) = 1 + \int_{0}^{t} f(s), \Psi_{0}(s) ds = 1 + \int_{0}^{t} (s + 1 - 1) ds = 1 + \frac{s^{2}}{2} \int_{0}^{t} = 1 + \frac{t^{2}}{2}
             4_{2}(t) = 1 + \int_{0}^{t} f(s, 4, (s)) ds = 1 + \int_{0}^{t} (s + 1 - (1 + \frac{s^{2}}{2})^{2}) ds =
   = 1 + \int (3 + 1 - 1 - \frac{3^4}{4} - 25^2) ds = 1 + \left(\frac{5^2 - 5^2 - 28^3}{20}\right)^{\frac{1}{2}} = 1 + \frac{t^2 + t^5}{200} - \frac{2t^3}{30}
                   4_3(t) = 1 + \left(4(s), 4(s)\right)ds = 1 + \left(5(s+1) - (1+\frac{5^2}{2} - \frac{5^5}{3} - \frac{20}{3})\right)ds
  EX. 6. REZOLVARE
(a) f(t,x) = 3x^{3} + 1, 1 \in \mathbb{R}, f: \mathbb{R} \times \mathbb{R} \to \mathbb{R}. continue Guicfie
elementarà in e) -> Hto, E) ER XR se poate construer girul aproximation successor
(Pi)i =0 (dise the Cauchy-Picard), care trude la volutia probil- Cauchy:
 f(x) = f(t, x) = f(t, x) = (I) solutive a problèmei Candry (f, t_0, x_0)
Calculation \frac{\partial f}{\partial x} = 3 \cdot \frac{2}{3} \cdot \frac{1}{3} = 2x \cdot \frac{1}{3} = 1 continue \mathbb{R}^*, \mathbb{R}^*
   0 = (t_0 + t_0 c)^3 \Rightarrow c = -t_0 \Rightarrow \times (t) = (t - t_0)^3 \Rightarrow
              t €0 € IR problema Candy (f, to 10) un are solutie unica.
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