```
DEF: P: 52 CIR2 -> IR3
                ((x, y) := (x, y, x(x, y)) & G, (GRAFICO DI f)

Lo MAPPA DI f(x) SU UN PIANO 3D
DSS: LA CORRISPONDENZA Y: SZ -> G& E BIUNIVOCA: FISSATO PEG& 3(X0, Y0) & St.C.
               P = (xo, yo, &(xo, yo))
DEF: IL PIANO TANGENTE A UNA & IN P È L'INSIEME DEI VETTORI TANGENTI A QUEL PUNTO.
 CONSIDERO UMA CURVA \delta: (-d, \delta) \ni t \longrightarrow (x(+), y(+)) \in \mathfrak{L}
          Y .... P OUIMDI (Xo, Yo) = &(0) -> ALL'ISTANTE O PASSA PER XO, YO

SIMILE AL MODELLO CINEMATICO

X CIOÈ (XO, Yo) = Y-4 (P) (ION P FISSATO) -> SIAMO SICURI } PER BIUNI VO CITÀ
 A QUESTO PUNTO CONSIDERO UM ULTERIORE CURVA ((8(+)): (- S. S) -> GP
              Y(V(+)) = (x(+), y(+), f(x(+), y(+)) CON + E (-S,S). AL VARIARE DI + CREINMO UN CAMMINO SU GR DOVE
 CON t=0 , 4(1(0)) = P.
 OSS: SE 8(+) E REGOLARE (CIOÈ 8 E C'(- J. J) + C. 8'(4) +0) ALLORA ANCHE ((8(+)) E REGOLARE
MATRICE TACOPIANA:
DATA Y(x,y) := (x,y), f(x,y)
  ATA Y(x,y) := (x, y) f(x,y)
y := (x, y) f(x,y)
f(x, y) f(x,
   CERCHIAMO QUINDI Y'(B(H)), CHE È REGOLARE E PER IL TED. DERIVAZIONE COMPOSTA:
    4'(8(+))= 2x(8(+))x'(+)+ 3y(8(+))y'(+) # 0 (con + (-1, 1) se 1'(+)=(x'(+), y'(+)) # 0)
    R IN PARTICOLARE ('()(0)), con \delta(0) = (X_0, Y_0) & ((X_0, Y_0) = (X_0, Y_0, \frac{1}{2}(X_0, Y_0)) \rightarrow ('()(0)) = ('()(0, Y_0))

CHE È ESPRIMIBILE COME COMB. LINEARE DI \frac{24}{25}(10) & \frac{24}{25}(10).
    INDLTRE VALE IL VICEVERSA: SE ] W= \ 24 (Ko, 1/6) + M 27 (Xo, 1/6), POSSO DEFINIRE.
   UNA CURVA REGOLARE PASSANTE PER P, IL WI VETTORE TANGENTE PER += 0 E W: P(4.8(1x+x0, m++y0)
     1 P(0) = Y(x2, y2) = P INOLTRE P'(+) = 2x ( \( \lambda + \chi_0 , \( \tau + \chi_0 \rangle \) \( \lambda + \chi_0 \)
    QUINDI DEFINIAMO LO SPAZIO TANGENTE AL PUNTO PEG, L'INSIEME DELLE COMB. LINEARI DI OXI (Xo. X)
     DEFINIAMO VERSORE NORMALE AL PIANO TANGENTE A G. IN P:
      \frac{\partial^{4}(x_{0}, y_{0}) \wedge \frac{\partial^{4}(x_{0}, y_{0})}{\partial y}(x_{0}, y_{0})}{||\frac{\partial^{4}(x_{0}, y_{0}) \wedge \frac{\partial^{4}(x_{0}, y_{0})}{\partial y}(x_{0}, y_{0})||}} 
Dove \overline{a} \wedge \overline{b} (\overline{a}, \overline{b} \in \mathbb{R}^{3}) = det \begin{pmatrix} \overline{e_{1}}, \overline{e_{2}}, \overline{e_{3}} \\ a_{1}, a_{2}, a_{3} \\ b_{1}, b_{2}, b_{3} \end{pmatrix}, \overline{a} \wedge \overline{b} \text{ ortogonace } \Lambda \overline{a}_{2} \overline{b}
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h	7	( 1		(Xe,	Y-) +	f; (i	ו, Y	.)	, -				,					/										×	X.				A P		¥.1.2								₹) and	G&	NE NG	'RIG	<b>31</b>	
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TE HI	AT	E IR E IR E IR	UNA SI	( ( ( ( MMI	PRI	DR TRI HL RI RI EGA IDE	ATI ICE ISP.	CA	t = (	'a; = = N <del>2</del> Fo => =>	A S	1=1 2 2 3 4 Tut 2	/AT, AUT, AUT, AZ	h;	A A A A A A A A A A A A A A A A A A A	ATT	P(CA)	0 Po: NE IN: Pos.	UM SITI GA DEI	A IVA	FIA VITA	· :		on (I	€ L) ,,,,	9.00co	н : !.с.	IR "	->   / h   q(	IR ← I (b <sub>1</sub> )	(k <sup>h</sup> -	{o	) RM	A ()	h2)		(sol	EAL UE.	cA		Je+(	(A)	(ATA	•	AD	, (		
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TE HI	AT	RE (CAA) E IR REAL REAL REAL REAL REAL REAL REAL REA	IN PER PER IN	( ( ( MMI	PRI TI V	DR TRI HLA SSITI EGA IDE:	ATI ICE , L ISP: IPA	A A A A A A A A A A A A A A A A A A A	H= (	a ;   Fo   Fo   Fo   Fo   Fo   Fo   Fo	AS:	1 = 1 2 Q = 1 1 Tut 1 N	/AT,h,h,h,h,h,h	h;	A h J	LOI ATT	PI  (CA  )  (CIP)	Pos NE IN	UN SITI GA DEI	A IVA	FIA LITA	( <del>1</del>	7 3 G	) N ( ) N ( ) N ( ) N ( )	€ h); h); h);	Q. 0 CO	,c.	AR	-> /h q(	IR ← I ISA	(   k <sup>h</sup> -   ∠	{o	2 q	A I ()	h2)		(sol	EAL UE.	cA		Je+(	(A)	(ATA	•	AD	, (		
TE HI UN DE DAT	ATTATA	RECCA E IR PEN H 1 2 3 3 M INCO	IN PRE	( ( ( MMI	PRI TI V	DR TRI Hh RI EGA IDE:	ATI ICE , L ISP: IPA	A NC	H = (	'a;   =	AS: -A -RM/ -A	1 = 1 2 Q = 1 3 Q = 1 4 7 Q 1 PA(	/AT,h,h,h,h,h,h	h:	A A A A A A A A A A A A A A A A A A A	ATI	PI CA	Pos IN	UN SITI GA DE!	A IVA	FINALITA  SEPACIO	( <del>1</del>	7 3 G	) N ( ) N ( ) N ( ) N ( )	€ h); h); h);	Q. 0 CO	,c.	AR	-> /h q(	IR ← I ISA	(   k <sup>h</sup> -   ∠	{o	2 q	A I ()	h2)		(sol	EAL UE.	cA		Je+(	(A)	(ATA	•	AD	, (		
TE HI	ATTATA	RE ( )  RE   R  RE   R	IN PRE	A MMI	QUA MA	DR TRI Hh RI EGA IDE:	ATI ICE , L ISP: IPA	A NC	H = (	'2 ;   =	AS: -A -RMA-INC	1 = 1 2 Q = 1 3 Q = 1 4 7 Q 1 PA(	AUT  AUT  AUT  AU  AU  AU  CO  CO  CO  CO  CO  CO  CO  CO  CO  C	h:	A A A A A A A A A A A A A A A A A A A	ATI	PI CA	Pos IN	UN SITI GA DE!	A IVA	FINALITA  SEPACIO	( <del>1</del>	7 3 G	) N ( ) N ( ) N ( ) N ( )	€ h); h); h);	Q. 0 CO	,c.	AR	-> /h q(	IR ← I ISA	(   k <sup>h</sup> -   ∠	{o	2 q	A I ()	h2)		(sol	EAL UE.	cA		Je+(	(A)	(ATA	•	AD	, (		

