

1/7/1005 3
 c: $\begin{cases} x = z^3 - 1 \\ y = 0 \end{cases}$
 a) $\sum: \pm \sqrt{x^2 + y^2} = z^3 - 1$
 $x^2 + y^2 = z^6 - 2z^3 + 1$
 b) $F(x, y, z) =$
 $x^2 + y^2 - z^6 + 2z^3 - 1 = 0$
 c) cono tang.
 d) riferimento assiale
 e) trovare i punti multipli
 f) $F_x = 2x$
 $F_y = 2y$
 $F_z = -6z^5 + 6z^2$
 $\nabla F = 0$
 ① $\begin{cases} x=0 \\ y=0 \\ z=1 \end{cases}$
 ② $\begin{cases} 0+0-1+2-1=0 \\ x=0 \\ y=0 \\ z=1 \end{cases}$
 $\begin{cases} F=0 \\ F_x=0 \\ F_y=0 \\ F_z=0 \end{cases}$
 $6z^2(1-z^3)=0$
 $z=0 \quad ①$
 $z=1 \quad ②$
 $P = (0, 0, 1)$

$$F_x = 2x$$

$$\begin{matrix} F_y = 2y \\ F_z = -6z^5 + 6z^2 \end{matrix}$$

G P

$$\left(\frac{(x-a)^2}{\partial x} + \frac{(y-a)^2}{\partial y} + \frac{(z-1)^2}{\partial z} \right)^2 f(a, a, 1) = 0$$

$$F_{xx} = 2$$

2

$$F_{xy} = 0$$

0

$$F_{xz} = 0$$

0

$$F_{yy} = 2$$

2

$$F_{yz} = 0$$

0

$$F_{zz} = -30z^4 + 12z \quad -18$$

-18

$$2x^2 + 2y^2 - 18(z^2 - 2z + 1) = 0$$

$$x^2 + y^2 - 9z^2 + 18z - 9 = 0$$

$$2x^2 + 0xy + 0xz(z-1) + 2y^2 + 0yz(z-1) + (-18)(z-1)^2 = 0$$

$$x^2 + y^2 - z^6 + 2z^5 - 1 = 0$$

d) Tang. s. int. in $Q_0(7, 0, 2)$

$$\left. \begin{array}{l} x = 7 + lt \\ y = mt \\ z = 2 + nt \end{array} \right\} \Phi(t) = (7+lt)^2 + (mt)^2 - (2+nt)^6 + 2(2+nt)^3 - 1 =$$

$$= -n^6 t^6 - 12n^5 t^5 - 60n^4 t^4 - 158n^3 t^3 - 228n^2 t^2 + m^2 t^2 + l^2 t^2 - 168nt + 14lt$$

$$\Phi'(t) = -6n^6 t^5 - 60n^5 t^4 - 240n^4 t^3 - 474n^3 t^2 - 456n^2 t + 2m^2 t + 2l^2 t - 168n + 14l$$

$$\Phi''(t) = -30n^6 t^4 - 240n^5 t^3 - 720n^4 t^2 - 948n^3 t - 456n^2 + 2m^2 + 2l^2$$

$$\left. \begin{array}{l} \Phi'(0) = 0 \\ \Phi''(0) = 0 \end{array} \right\} \begin{array}{l} -168n + 14l = 0 \\ -456n^2 + 2m^2 + 2l^2 = 0 \end{array} \quad \left. \begin{array}{l} l = 12n \\ 2m^2 - 168n^2 = 0 \\ m^2 = 84n^2 \end{array} \right\} \begin{array}{l} m = 2\sqrt{21}n \\ m = -2\sqrt{21}n \end{array}$$

Scalogo $n = 1$

$$\left. \begin{array}{l} x = 7 + 12t \\ y = 2\sqrt{21}t \\ z = 2 + t \end{array} \right\}$$

$$\left. \begin{array}{l} x = 7 + 12t \\ y = -2\sqrt{21}t \\ z = 2 + t \end{array} \right\}$$

