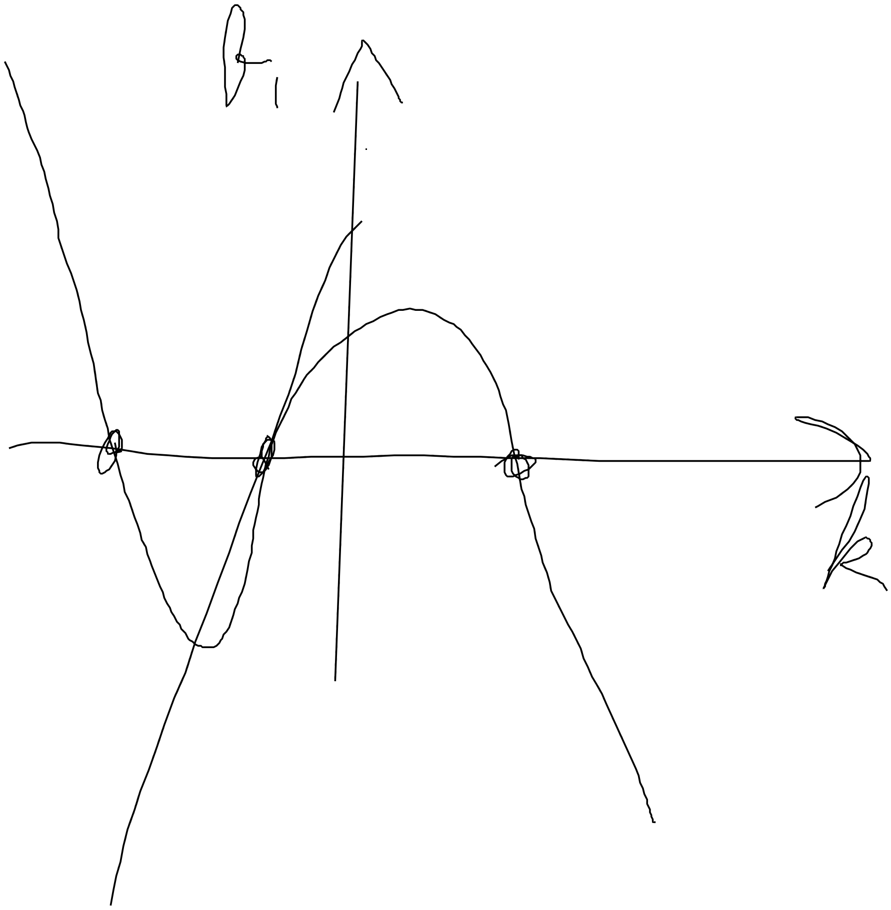
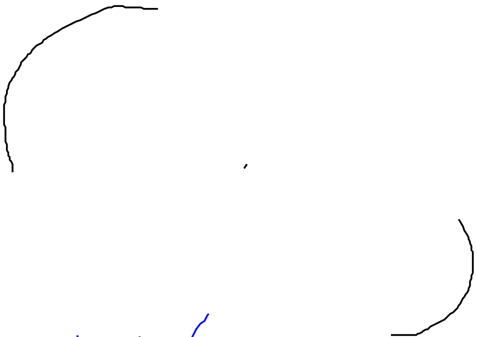
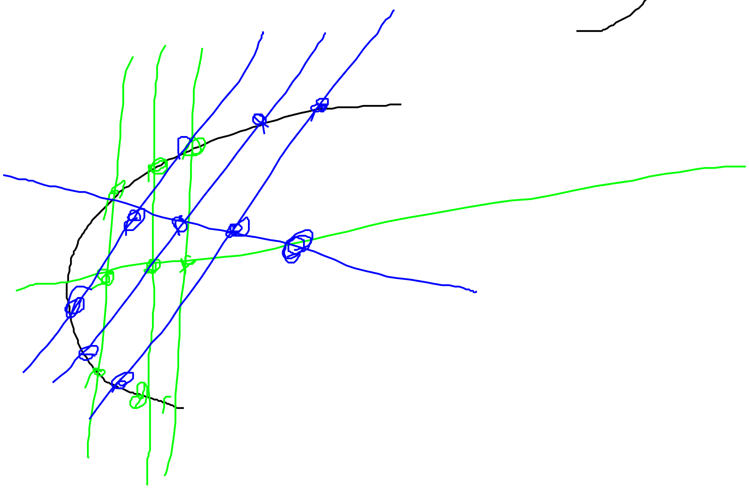
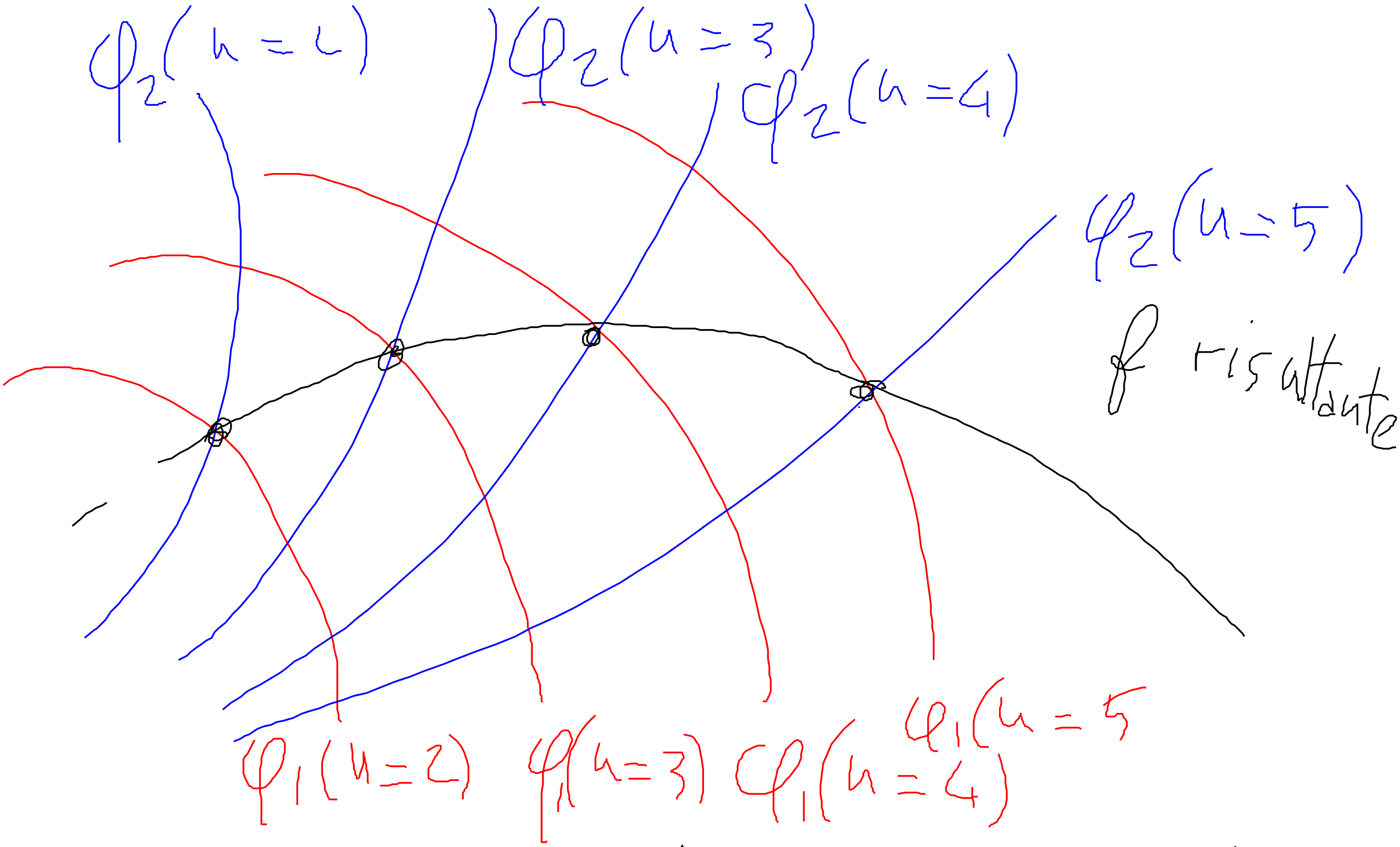








$$y - y_0 = f'(x_0)(x - x_0)$$

$$\frac{x - x_0}{1} = \frac{y - y_0}{f'(x_0)}$$

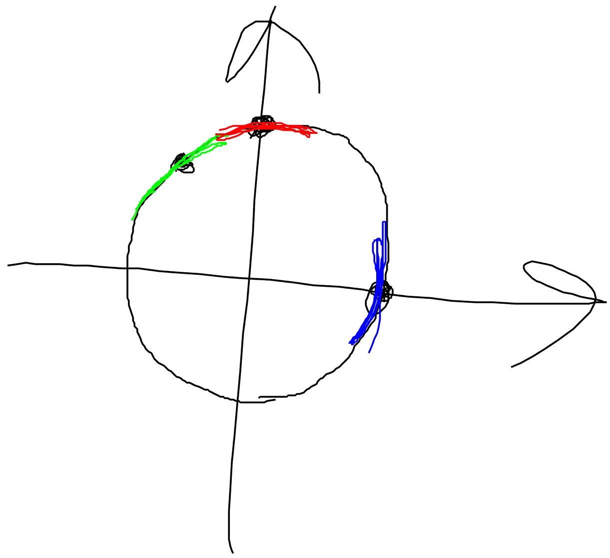
$$l_1 \qquad l_2$$

$$a(x - x_0) + b(y - y_0) = 0$$

$$\perp \iff (a, b) \sim (l_1, l_2)$$

normale in P: $1(x-x_0)+f'(x_0)(y-y_0)=0$

$f(x,y)=x^2+y^2-1$



$X_0=f_0(u)\quad X_1=f_1(u)\quad X_2=f_2(u)$

$$\begin{vmatrix} X_0 & X_1 & X_2 \\ f_0(\bar{u}) & f_1(\bar{u}) & f_2(\bar{u}) \\ f_0'(\bar{u}) & f_1'(\bar{u}) & f_2'(\bar{u}) \end{vmatrix} = 0$$

$x=f_1(u)\quad y=f_2(u)$

$X_0=1$

$X_1=x$

$X_2=y$

$$\begin{vmatrix} 1 & x & y \\ 1 & f_1(\bar{u}) & f_2(\bar{u}) \\ 0 & f_1'(\bar{u}) & f_2'(\bar{u}) \end{vmatrix} =$$

$$= + \begin{vmatrix} 0 & (x - f_1(\bar{u})) & (y - f_2(\bar{u})) \\ 1 & f_1(\bar{u}) & f_2(\bar{u}) \\ 0 & f_1'(\bar{u}) & f_2'(\bar{u}) \end{vmatrix} =$$

$$= - \begin{vmatrix} (x - f_1(\bar{u})) & (y - f_2(\bar{u})) \\ f_1'(\bar{u}) & f_2'(\bar{u}) \end{vmatrix} = 0$$

$$-\left(f_2'(\bar{u})(x - f_1(\bar{u})) - f_1'(\bar{u})(y - f_2(\bar{u})) \right) = 0$$

$$\frac{x - f_1(\bar{u})}{f_1'(\bar{u})} = \frac{y - f_2(\bar{u})}{f_2'(\bar{u})}$$