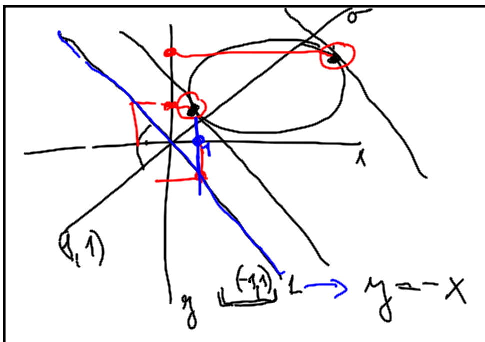


10 21-18:38

$k: 3x^2+6y^2-3x+3y-2=0$ $\quad y=f(x)$

tečný vektor $(x, f'(x))$

$6x+12yy'-3+3y'=0$

$y'(12y+3)=3-6x$

$y' = \dfrac{3-6x}{12y+3} = \dfrac{1-2x}{4y+1}$

$-1 = \dfrac{1-2x}{4y+1}$

$4y+1=-1+2x$

$-2x=4y$ $\quad x=+2y+1$

10 21-18:49

$3\cdot(-2y)^2+6y^2-3(-2y)+3y-2=0$

$3\cdot 4y^2+6y^2+6y+3y-2=0$

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

y_{12}

10 21-19:11

$z=f(x,y)$

$z'_x: \; 2x+2zz'_x=0$

$z'_y: \; 4y+2zz'_y=0$

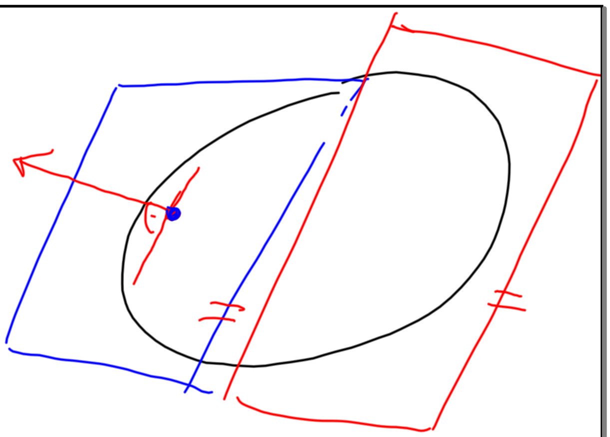
$(z'_x, z'_y, 1) = z'_z = 1 \quad \parallel \quad (1,-1,2)$

$2(z'_x, z'_y, 1) = (1,-1,2)$

$2z'_x = 1$

$2z'_y = -1$

10 21-19:21

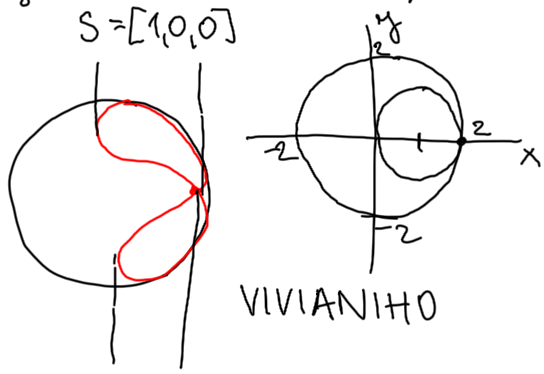


10 21-19:29

$x^2+y^2+z^2=4$ } .... sféra o $r=2$

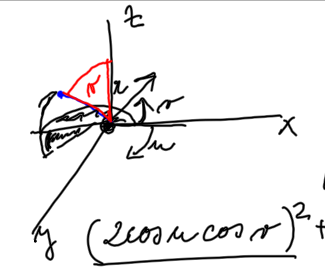
$x^2+y^2-2x=0$ } .... válcová plocha

$S=[1,0,0]$



VIVIANIHO

10 21-19:32



$X = 2\cos u \cos v$

$y = 2\cos v \sin u$

$z = 2\sin v$

$(2\cos u \cos v)^2 + (2\cos v \sin u)^2 -$

$2\cdot 2\cos u \cos v = 0$

$u = \pm v$

VK: $x = 2\cos u \cos(\pm u)$ $\quad c(u) = (\ , \ , \ )$

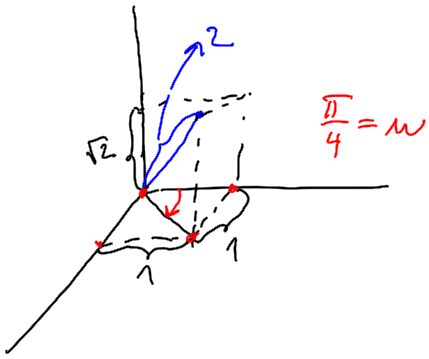
$y = 2\cos(\pm u)\sin u$

$z = 2\sin(\pm u)$

$c'(1)$.... obecný směr. tečny

$[1, 1, \sqrt{2}]$

10 21-19:36



$\frac{\pi}{4} = u$

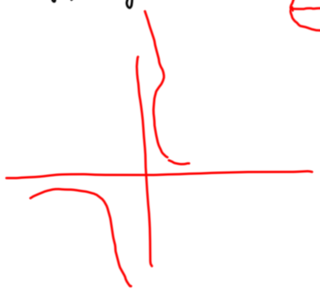
tečna $v\ [1, 1, \sqrt{2}]$ $\quad y = c'(1) \cdot s + \begin{bmatrix} 1 \\ 1 \\ \sqrt{2} \end{bmatrix}$

10 21-19:45

30

$$\lim_{(x,y)\to(0,0)} \frac{1-\cos(x^2+y^2)}{(x^2+y^2)x\cdot y} = \lim_{r\to 0^+} \frac{1-\cos(r^2)}{r^4(\cos\varphi \sin\varphi)}$$

$= \nexists$



10 21-19:51

$$\lim_{(x,y)\to(\infty,\infty)} (x^2+y^2)\cdot e^{-(x+y)}$$

$$= \lim_{r\to\infty} r^2 \cdot e^{-r(\sin\varphi + \cos\varphi)} =$$

$$= \lim_{r\to\infty} \frac{r^2}{e^{r(\sin\varphi + \cos\varphi)}} =$$

$$= \lim_{r\to\infty} \frac{2r}{e^{r(\sin\varphi+\cos\varphi)} \cdot (\sin\varphi + \cos\varphi)}$$

10 21-20:01

$$f'_u(x_0, y_0) = \lim_{t\to 0} \frac{f(x_0 + u_1 t, y_0 + u_2 t) - f(x_0, y_0)}{t}$$

$u = (u_1, u_2)$

$(x_0, y_0) = [0, 0]$

$$\frac{\frac{(u_1 t)^4 \cdot (u_2 t)^2}{(u_1 t)^8 + (u_2 t)^4} - 0}{t}$$

$\to 0$

10 21-20:11