407. Odredite koordinate dirališta tangenti na kružnicu $(x-1)^2+(y-2)^2=4$ okomitih na pravac $y=-2$.

1. $(-1,2),\ (3,2)$ 2. $(1,4),\ (1,0)$ 3. $(0,2+\sqrt{3}),\ (0,2-\sqrt{3})$
4. ne postoje takva dirališta

$k\ldots(x-1)^2+(y-2)^2=4 \quad \Rightarrow \quad p=1,\ q=2,\ r=2$

$p\ldots y=-2$

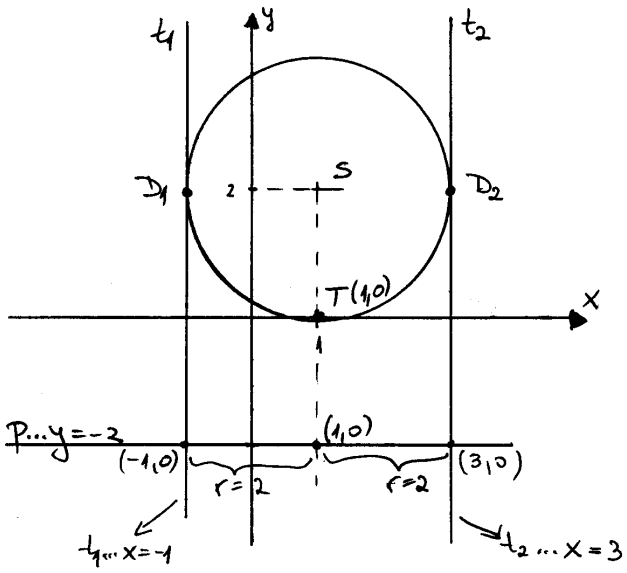
$t_1 \perp p,\ t_2 \perp p$

$D_1D_2=?$

$S=(p,q) \Rightarrow S=(1,2)$

$r=2$

Nacrtamo kružnicu



$t_1 ... x = -1$

$t_2 ... x = 3$

$D_1(x_1, y_1) = ? \Rightarrow$ dobijemo tako da stavimo u sustav t_1 i k

$D_2(x_2, y_2) = ? \Rightarrow$ dobijemo tako da stavimo u sustav t_2 i k

$t_1 ... x = -1$

$k .... (x-1)^2 + (y-2)^2 = 4$

$(-1-1)^2 + (y-2)^2 = 4$

$(-2)^2 + y^2 - 4y + 4 = 4$

$4 + y^2 - 4y + 4 - 4 = 0$

$$y_{1/2} = \frac{-b\sqrt{b^2 - 4ac}}{2a}$$

$$y_{1/2} = \frac{4 \pm \sqrt{(-4)^2 - 4 \cdot 1 \cdot 4}}{2 \cdot 1}$$

$$y_{1/2} = \frac{4 \pm \sqrt{16-16}}{2} = \frac{4 \pm \sqrt{0}}{2}$$

$$y_1 = \frac{4}{2} = 2$$

$D_1 = (-1, 2)$

$t_2 ... x = 3$

$k ... (x-1)^2 + (y-2)^2 = 4$

$(3-1)^2 + (y-2)^2 = 4$

$2^2 + y^2 - 4y + 4 = 4$

$4 + y^2 - 4y + 4 - 4 = 0$

$y^2 - 4y + 4 = 0$

$$y_{1/2} = \frac{-b \pm \sqrt{b^4 4ac}}{2a}$$

$$y_{1/2} = \frac{4 \pm \sqrt{(-4)^2 - 4 \cdot 1 \cdot 4}}{2 \cdot 1} = \frac{4 \pm \sqrt{16-16}}{2} = \frac{4 \pm \sqrt{0}}{2}$$

$$y_1 = \frac{4}{2} = 2$$

$D_2 = (3, 2)$