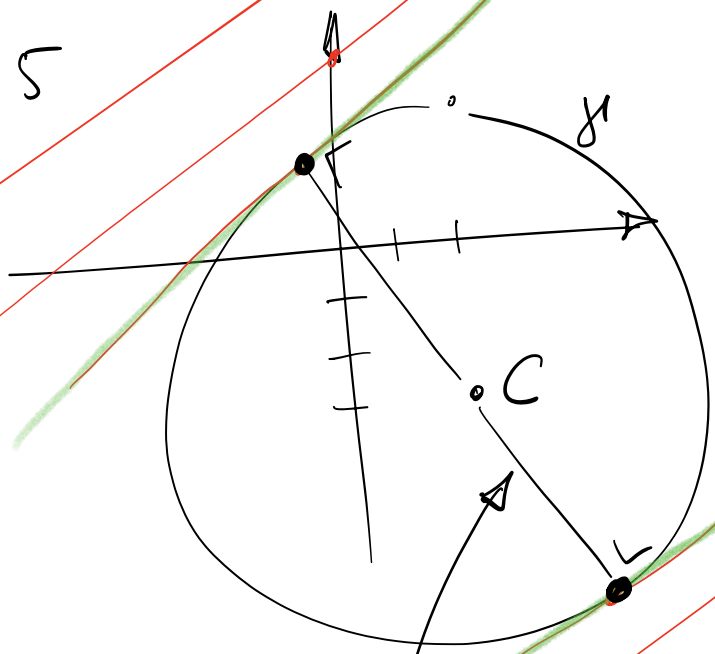
$$(x-2)^2 + (y+3)^2 = 25$$

$C(2; -3)$ $\quad r = 5$



direction

pente : $\frac{3}{4}$

Trouver les équations des tangentes à γ de pente $m = \frac{3}{4}$.

$d: y = \frac{3}{4}x + h$

$4y = 3x + h'$

$3x - 4y + h' = 0$

$4x + 3y + c = 0$

par $C(2; -3)$

$4x + 3y - 1 = 0$

$\begin{pmatrix} 3 \\ -4 \end{pmatrix} \perp \begin{pmatrix} 4 \\ 3 \end{pmatrix}$

$x=2 \quad y=-3$

$c=1$

$4x+3y+1=0$

$3y=-1-4x \;/\; y=-\frac{1}{3}-\frac{4}{3}x$

$(x-2)^2+(y+3)^2=25$

$x^2-4x+4+\left(-\frac{1}{3}-\frac{4}{3}x+3\right)^2=25$

$x^2-4x+4+\left(\frac{8}{3}-\frac{4}{3}x\right)^2=25$

$\left(\frac{4}{3}(2+x)\right)^2$

$x^2-4x+4+\frac{16}{9}(4-4x+x^2)=25$

$9x^2-36x+36+64-64x+16x^2=225$

$25x^2-100x-125=0 \quad \Leftrightarrow \quad x^2-4x-5=0$

$\Leftrightarrow (x-5)(x+1) = 0$

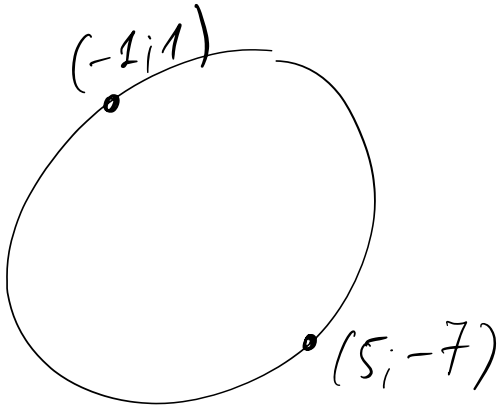
$\Rightarrow \quad x = 5 \quad$ et $\quad y = -\frac{1}{3} - \frac{4}{3}\cdot 5 = -\frac{1}{3} - \frac{20}{3}$

$= -7$

$x = -1 \quad$ et $\quad y = -\frac{1}{3} + \frac{4}{3} = 1$

Los dos puntos de contacto son donc $T_1(5; -7)$

$T_2(-1; 1)$



$t_1 : 3x - 4y + c = 0 \quad$ por $(-1; 1)$

$-3 - 4 + c = 0, \quad c = 7$

$t_1 : 3x - 4y + 7 = 0$

$t_2 : 3x - 4y + c = 0$ por $(5; -7)$

$3 \cdot 5 + 28 + c = 0$

$c = -43$

$t_2 : 3x - 4y - 43 = 0$