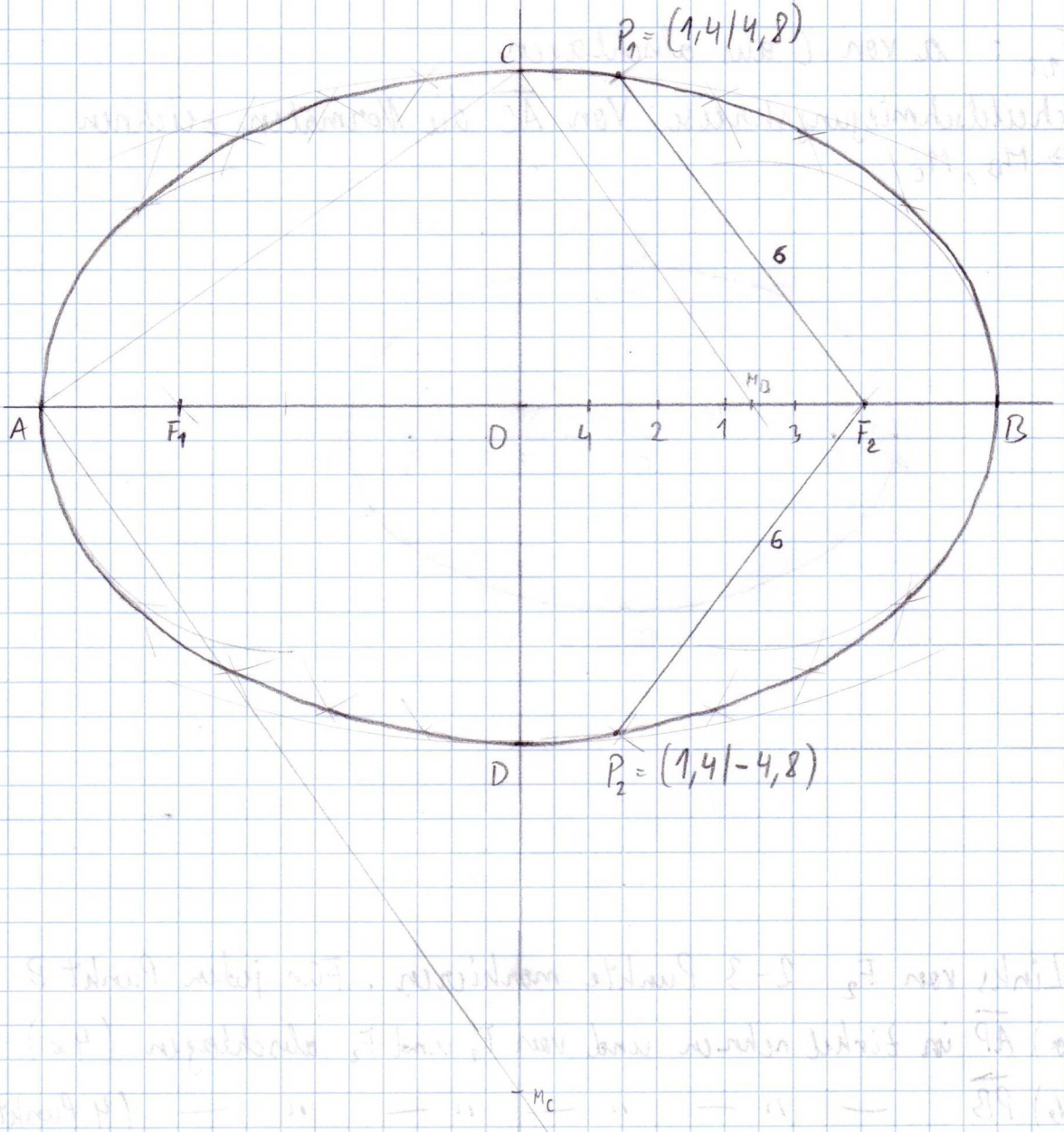
42. Schulübung

•) Konstruiere: ell [a = 7 b = 4,5]
Welche Punkte haben von F_2 den Abstand 6?



24. Hü: Moodle „Kreis, Ellipse, Hyperbel"

7.50 a) ell: $3x^2+4y^2=108$ g: $3x+2y=18$

Ges.: Länge $\overline{S_1S_2}$; Abstand $\overline{gO}$

g ∩ ell: $y = 9-\frac{3}{2}x$

$3x^2+4\left(9-\frac{3}{2}x\right)^2=108$

$3x^2+4\left(81-\frac{54}{2}x+\frac{9}{4}x^2\right)=108$

$3x^2+324-108x+9x^2=108$

$12x^2-108x+216=0 \quad |:12$

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

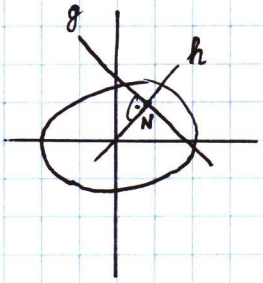
$x_1=3 \quad y_1=\frac{9}{2} \quad S_1=(3|\frac{9}{2})$

$x_2=6 \quad y_2=0 \quad S_2=(6|0)$

$|\overrightarrow{S_1S_2}| = \left|\begin{pmatrix}3\\-\frac{9}{2}\end{pmatrix}\right| = \sqrt{9+\frac{81}{4}} \approx \underline{\underline{5{,}41}}$

$h \perp g$ durch O: $2x-3y=0$

$N = h \cap g$: $x=\frac{3}{2}y$



$\frac{9}{2}y+2y=18 \quad |\cdot 2$

$9y+4y=36$

$y=\frac{36}{13} \quad x=\frac{3\cdot 36}{2\cdot 13}=\frac{54}{13} \Rightarrow N=(\frac{54}{13}|\frac{36}{13})$

$|\overrightarrow{ON}| = \sqrt{(\frac{54}{13})^2+(\frac{36}{13})^2} \approx \underline{\underline{4{,}99}}$