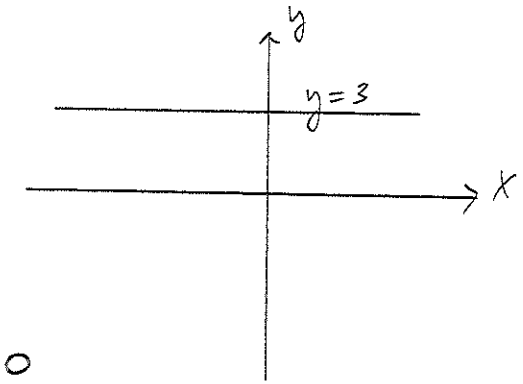
RP. 123. c)

Linje genom (-2,3) parallell med x-axeln.



$\Rightarrow k = 0$

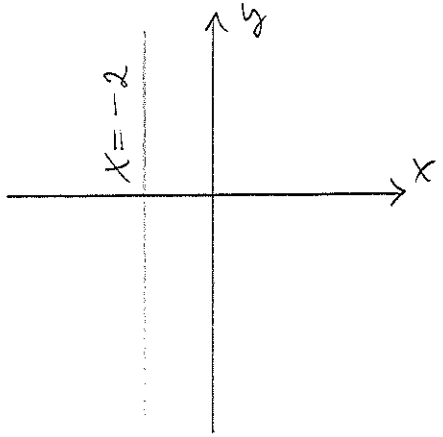
$y = m$

$3 = m$

$\therefore \quad \underline{\underline{y - 3 = 0}}$

RP. 123. d)

Linje genom (-2,3) parallell med y-axeln.



$\therefore \quad x = -2$

$\underline{\underline{x + 2 = 0}}$

RP. 126. b)

$$\begin{cases} 2x + 3y = 0 & \Leftrightarrow y = -\frac{2}{3}x \\ x - 2y + 2 = 0 & \Leftrightarrow y = \frac{1}{2}x + 1 \end{cases}$$

$-2/3\, x = \frac{1}{2} x + 1$

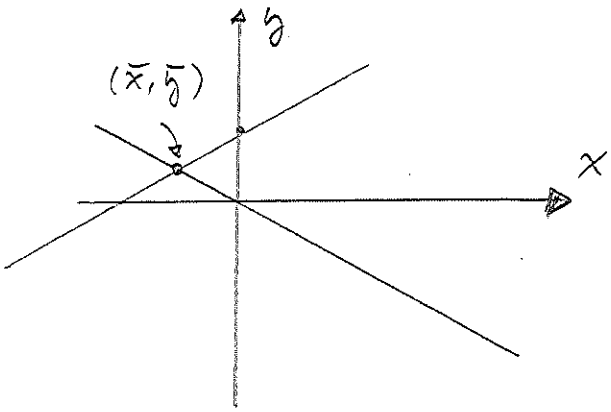
$\left(\frac{1}{2} + \frac{2}{3}\right) x = -1$

$\frac{3+4}{6} x = -1$

$x = -6/7$

$\Rightarrow y = \frac{2}{3_1} \cdot \frac{6}{7} = 4/7$

Svar: $\underline{\underline{(\bar{x}, \bar{y}) = (-6/7,\ 4/7)}}$



RD. 129. b) $3y - x = 4$

Bestäm normal i punkten $(-1, 1)$

Kontroll: $3 \cdot 1 - (-1) = 3 + 1 = 4$ ok

$3y - x = 4$

$\Leftrightarrow \quad y = \frac{x}{3} + \frac{4}{3}$

$\therefore \quad k_1 = \frac{1}{3}$

$\boxed{k_1 k_2 = -1}$

Normalen har $k_2 = -1/k_1 = -3$

$y = k_2 x + m_2 = -3x + m_2$

$m_2 = y + 3x = 1 + 3 \cdot (-1) = -2$

$\therefore \quad \underline{\underline{y = -3x - 2}}$

$(3x + y = -2)$

RP. 144. b)

Angiv geometrisk betydelse av:

$x^2 + 6x - 4y^2 + 9 = 0$

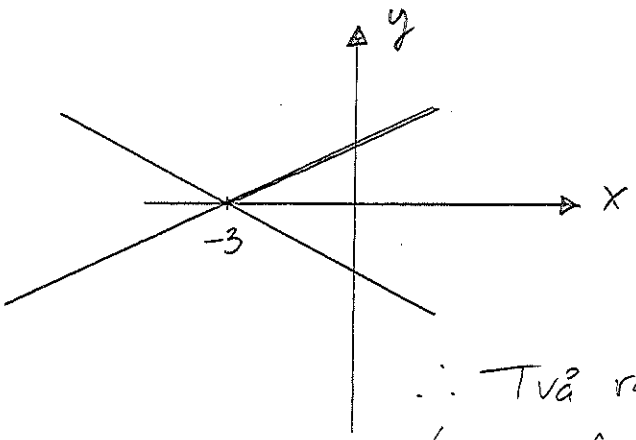
Kvadratkomplettera!

$(x^2 + 6x + 9) - 9 - 4y^2 + 9 = 0$

$(x + 3)^2 = 4y^2$

$2y = \pm (x + 3)$

$y = \pm \frac{1}{2}(x + 3)$



$\therefore$ Två räta linjer (extremfall av hyperbel)

RP. 144. 2)

Angiv geometrisk betydelse av:

$$45x^2 + 18y^2 + 30x + 12y + 7 = 0$$

Kvadratkomplettera!

$$5\cdot(9x^2+6x) + 2\cdot(9y^2+6y) + 7 = 0$$

$$5\cdot(9x^2+6x+1-1) + 2\cdot(9y^2+6y+1-1) + 7 = 0$$

$$5\cdot(3x+1)^2 + 2\cdot(3y+1)^2 - 5 - 2 + 7 = 0$$

$$5\cdot(3x+1)^2 + 2\cdot(3y+1)^2 = 0$$

$$\Rightarrow \begin{cases} 3x+1=0 \\ 3y+1=0 \end{cases}$$

$$\Rightarrow x = y = -\tfrac{1}{3}$$

$\therefore$ Punkten $\left(-\tfrac{1}{3}, -\tfrac{1}{3}\right)$

(extremfall av cirkel)