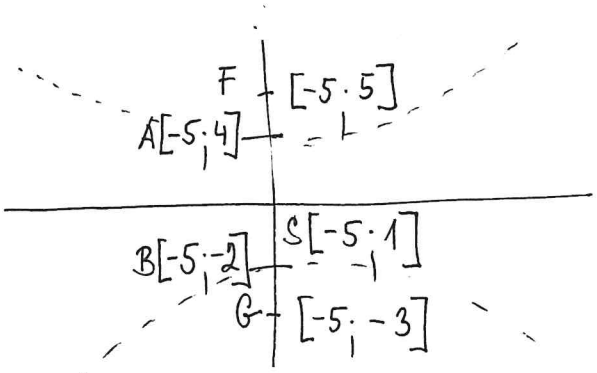
Hyperbola – príklady



1) $e = 4;\ a = 3;\quad b^2 = e^2 - a^2$

$b^2 = 16 - 9$

$b^2 = 7$

H: $\boxed{-\frac{(x+5)^2}{7} + \frac{(y-1)^2}{9} = 1}$

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

$4(x^2+6x+9) - 9(y^2+2y+1) = 9 + 36 - 9$

$4(x+3)^2 - 9(y+1)^2 = 36$

$\frac{(x+3)^2}{9} - \frac{(y+1)^2}{4} = 1 \longrightarrow$  $b = 2,\ a = 3 \rightarrow k = \pm\frac{b}{a}$

as.: $(y+1) = \pm\frac{2}{3}(x+3) \rightarrow y = \pm\frac{2}{3}x \pm 2 - 1 \longrightarrow$

$\boxed{y = \frac{2}{3}x + 1\ ;\ y = -\frac{2}{3} - 3}$

3) $8\cdot(-4)^2 - y^2 + 16 = 0 \rightarrow 144 = y^2 \longrightarrow y = \pm 12 \longrightarrow$

H: $\frac{8x^2}{-16} + \frac{y^2}{16} = 1 \longrightarrow -\frac{x^2}{2} + \frac{y^2}{16} = 1$

$T[-4; 12]$: t : $-\frac{x\cdot(-4)}{2} + \frac{12y}{16} = 1 \rightarrow \boxed{2x + \frac{3}{4}y - 1 = 0}$

$\overline{T}[-4; -12]$ $\overline{t}$: $-\frac{x(-4)}{2} + \frac{y\cdot(-12)}{16} = 1 \rightarrow \boxed{2x - \frac{3}{4}y - 1 = 0}$