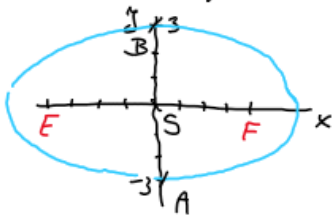


### Elipsa III - skúška úloh

51/5.40 napíšte rovnici elipsy, jej ťažisko a veľkosť jej osí  
 veľkosť jej osí  $A[0, -3]$ ,  $B[0, 3]$  a vzdialenosť  
 ohnísk je 8.



$$2e = 8 \quad S[0; 0]$$

$$e = 4$$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

$$b = |AS| = |BS| = 3$$

$$a > b \quad e^2 = a^2 - b^2$$

$$a^2 = e^2 + b^2 = 16 + 9 = 25 \quad \underline{\underline{a=5}}$$

$$E: \underline{\underline{\frac{x^2}{25} + \frac{y^2}{9} = 1}}$$

51/5.41 určte  $F, G, a, b, e$  elipsy

$$b) \quad 16x^2 + 25y^2 = 400 \quad | :400$$

$$\frac{16x^2}{400} + \frac{25y^2}{400} = 1$$

$$\frac{x^2}{\left(\frac{400}{16}\right) a^2} + \frac{y^2}{\left(\frac{400}{25}\right) b^2} = 1$$

$$e^2 = a^2 - b^2 =$$

$$= 25 - 16 = 9$$

$$\underline{\underline{e=3}}$$

$$a = \frac{20}{4} = 5 \quad b = \frac{20}{5} = 4$$

$$S[0; 0]$$

$$E[\underline{\underline{-3; 0}}] \quad F[\underline{\underline{3; 0}}]$$

52/5.45 určte, zda je  $\sigma E$ . určte  $S, a, b, F, G,$   
 $A_1, A_2, B_1, B_2$

$$a) \quad 9x^2 + 25y^2 - 54x - 100y - 44 = 0$$

$$9x^2 - 54x + 25y^2 - 100y - 44 = 0$$

$$9(x^2 - 6x) + 25(y^2 - 4y) - 44 = 0$$

$$9(x-3)^2 - 81 + 25(y-2)^2 - 100 - 44 = 0$$

$$9(x-3)^2 + 25(y-2)^2 = 225 \quad | :225$$

$$\frac{9(x-3)^2}{225} + \frac{25(y-2)^2}{225} = 1$$

$$\frac{(x-3)^2}{\frac{225}{9}} + \frac{(y-2)^2}{\frac{225}{25}} = 1 \Rightarrow \text{je to } E.$$

$$S[3; 2] \quad a = \frac{15}{3} = 5 \quad b = \frac{15}{5} = 3$$

$$e^2 = a^2 - b^2 = 25 - 9 = 16$$

$$\underline{\underline{e=4}}$$



$$E[\underline{\underline{-1; 2}}] \quad F[\underline{\underline{4; 2}}]$$

$$B_1[3; 5]$$

$$A_1[\underline{\underline{-2; 2}}] \quad A_2[\underline{\underline{8; 2}}]$$

$$\underline{\underline{B_2[3; -1]}}$$

$$e) \quad 9x^2 + 4y^2 - 36x + 72y + 360 = 0$$

$$9x^2 - 36x + 4y^2 + 72y + 360 = 0$$

$$9(x^2 - 4x) + 4(y^2 + 18y) + 360 = 0$$

$$9(x-2)^2 - 36 + 4(y+9)^2 - 324 + 360 = 0$$

$$9(x-2)^2 + 4(y+9)^2 = 0 \Rightarrow \text{nejde o } E.$$

- nejde ani o hyperbolu, parabolu ani pŕímku

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

$$9(x-2)^2 = 4(y+9)^2 \Rightarrow 3(x-2) = 2(y+9) \quad \begin{array}{l} 3x-6 = 2y+18 \\ 3x-2y-24 = 0 \end{array}$$