

$$1.5 \quad f: [3, 0] \mapsto [4, 4]$$

$$f: [1, 2] \mapsto [3, p]$$

$$f: [-1, 2] \mapsto [4p, 9]$$

$$\| (3-1, 0-2) \|^2 = \| (1-3, 4-p) \|^2$$

$$\| (3-1, 0-2) \|^2 = \| (1+(1+p), 4+q) \|^2$$

$$\| (1-1, 2-2) \|^2 = \| (3-1-p, p+q) \|^2$$

$$4+4 = 4+16-8p+p^2 \rightarrow p^2-8p+12=0 \Rightarrow p=2 \vee p=6$$

$$16+4 = p^2+16+8q+q^2$$

$$4 = 4-8p+p^2+p^2+2pq+q^2$$

$$a) \quad p=2$$

$$8q+q^2=0$$

$$q^2+4q=0$$

$$\} \quad q=0$$

$$b) \quad p=6$$

$$q^2+8q+32=0$$

$$q^2+12q+48=0$$

$$\} \quad q \notin \mathbb{R}$$

$$\Rightarrow p=2, \quad q=0.$$

$$f: \begin{pmatrix} x' \\ y' \end{pmatrix} = \begin{pmatrix} a & b \\ c & d \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} + \begin{pmatrix} t_1 \\ t_2 \end{pmatrix}$$

\rightarrow

$$a=d=0$$

$$s=c=1$$

$$t_1=t_2=1$$

$$f: \begin{pmatrix} x' \\ y' \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} + \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

\Rightarrow posunutá osouň

symétrie

1.5 $ax+by+c=0$ OSOQA' SOUTHERMOST

$$\frac{1}{a^2+b^2} \begin{bmatrix} b^2-a^2 & -2ab \\ -2ab & a^2-b^2 \end{bmatrix} \begin{pmatrix} x \\ y \end{pmatrix} - \frac{2c}{a^2+b^2} \begin{pmatrix} a \\ b \end{pmatrix}$$

$$2x+3y+4=0 \rightarrow \frac{1}{13} \begin{bmatrix} 5 & -12 \\ -12 & -5 \end{bmatrix} \begin{pmatrix} x \\ y \end{pmatrix} - \frac{1}{13} \begin{pmatrix} 18 \\ 24 \end{pmatrix}$$

$$x-y-3=0 \rightarrow \frac{1}{2} \begin{bmatrix} 0 & 2 \\ 2 & 0 \end{bmatrix} \begin{pmatrix} x \\ y \end{pmatrix} - \frac{2(-3)}{2} \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix} \left[\frac{1}{13} \begin{bmatrix} 5 & -12 \\ -12 & -5 \end{bmatrix} \begin{pmatrix} x \\ y \end{pmatrix} - \begin{pmatrix} 18 \\ 24 \end{pmatrix} \right] + \begin{pmatrix} 3 \\ -3 \end{pmatrix} =$$

$$\frac{1}{13} \begin{pmatrix} -12 & -5 \\ 5 & -12 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} + \frac{1}{13} \begin{pmatrix} 27 \\ -55 \end{pmatrix}$$

1.6 $\frac{1}{13} \begin{bmatrix} 5 & -12 \\ -12 & -5 \end{bmatrix} \left[\frac{1}{13} \begin{bmatrix} 5 & -12 \\ -12 & -5 \end{bmatrix} \begin{pmatrix} x \\ y \end{pmatrix} - \frac{1}{13} \begin{pmatrix} 18 \\ 24 \end{pmatrix} \right] =$

$$= \begin{pmatrix} x \\ y \end{pmatrix} + \frac{1}{13} \begin{pmatrix} 18 \\ 24 \end{pmatrix}$$