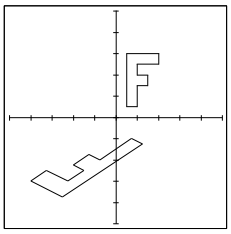
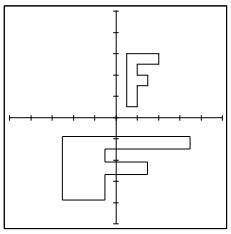
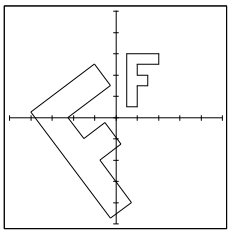
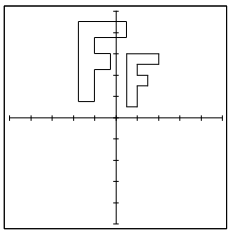
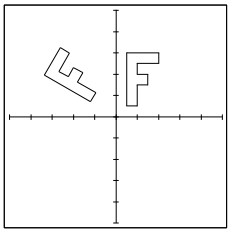
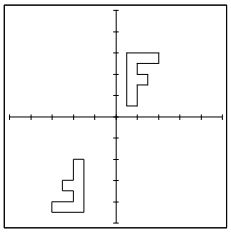
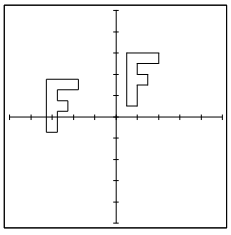
Trasformazioni lineari

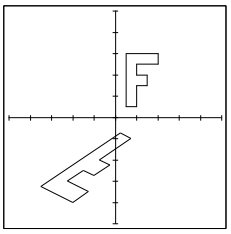
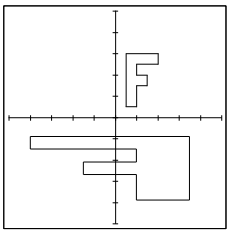
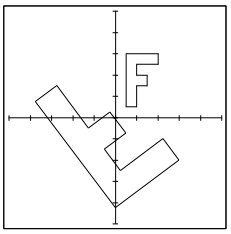
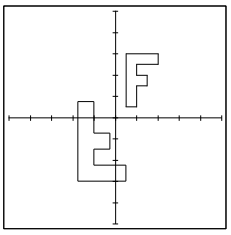
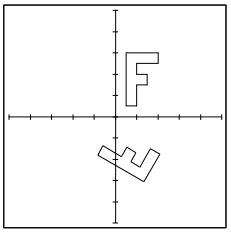
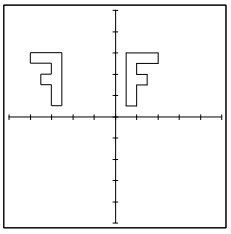
$$T: \begin{cases} x' = a\,x + b\,y + e \\ y' = c\,x + d\,y + f \end{cases}$$

$$T:\ X' = A \cdot X + B$$

$$T^{-1}:\ X = A^{-1} \cdot (X' - B)$$

$$\begin{bmatrix} x' \\ y' \end{bmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \cdot \begin{bmatrix} x \\ y \end{bmatrix} + \begin{bmatrix} e \\ f \end{bmatrix}$$

	Dirette det(A)>0	
Affinità	$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$	
Dilatazione	$A = \begin{bmatrix} h & 0 \\ 0 & k \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$ $\mathrm{sgn}(h) = \mathrm{sgn}(k)$	
Similitudine	$A = \begin{bmatrix} a & -b \\ b & a \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$ $K_{sim} = \sqrt{a^2 + b^2}$	
Omotetia	$A = \begin{bmatrix} k & 0 \\ 0 & k \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$ $K_{omo} = \sqrt{a^2 + b^2} = k$	
Rotazione	$A = \begin{bmatrix} a & -b \\ b & a \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$ $\sqrt{a^2 + b^2} = 1$	
Simmetria centrale	$A = \begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$	
Traslazione	$A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$	

	Indirette det(A)<0	
Affinità	$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$	
	$A = \begin{bmatrix} h & 0 \\ 0 & k \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$ $\mathrm{sgn}(h) \neq \mathrm{sgn}(k)$	
Similitudine	$A = \begin{bmatrix} a & b \\ b & -a \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$ $K_{sim} = \sqrt{a^2 + b^2}$	
	$A = \begin{bmatrix} k & 0 \\ 0 & -k \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$ $K_{sim} = \sqrt{a^2 + b^2} = k$	
Glissosimmetria	$A = \begin{bmatrix} a & b \\ b & -a \end{bmatrix}$ $B = \begin{bmatrix} e \\ f \end{bmatrix}$ $\sqrt{a^2 + b^2} = 1$	
Simmetria assiale // assi	$A = \begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}$ $B = \begin{bmatrix} e \\ 0 \end{bmatrix}$ $A = \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$ $B = \begin{bmatrix} 0 \\ f \end{bmatrix}$	
Simmetria assiale // bis. qu.	$A = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ $B = \begin{bmatrix} -e \\ e \end{bmatrix}$ $A = \begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$ $B = \begin{bmatrix} f \\ f \end{bmatrix}$