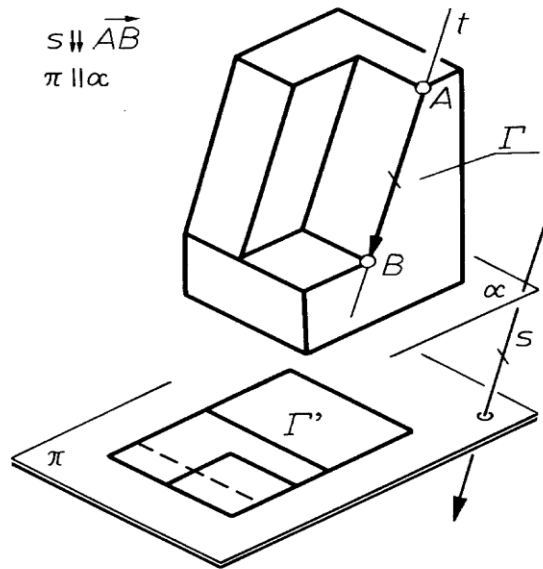


# Geometria inżynierska i rysunek techniczny – dr hab.,

inż. Jacek Abramczyk, prof. uczelni



Zespół cech geometrycznych

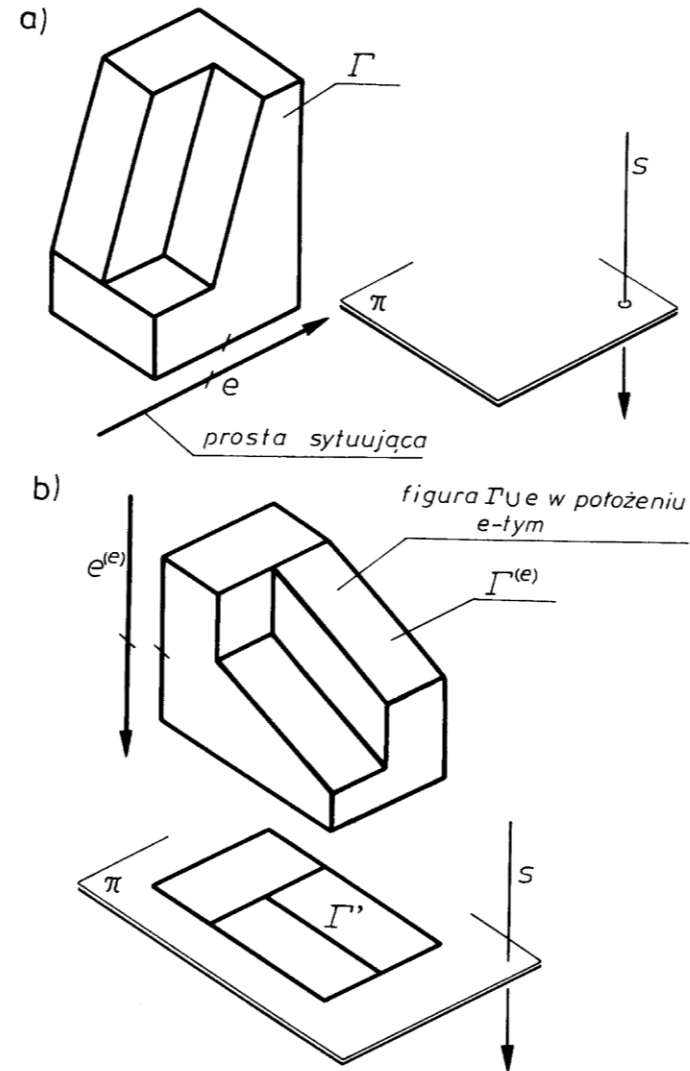
Zespół danych miarowych

Postać geometryczna

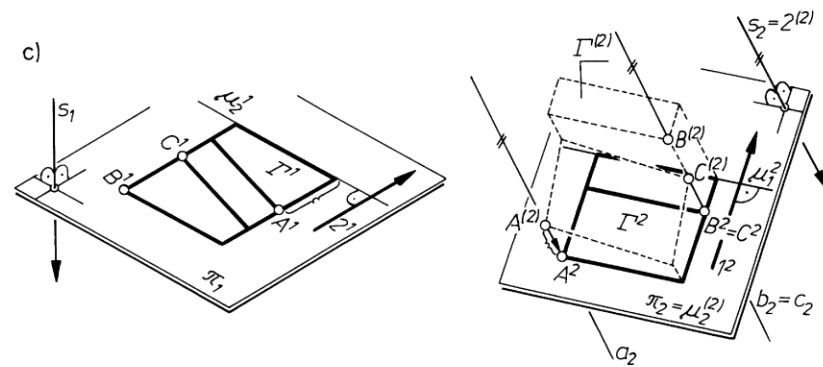
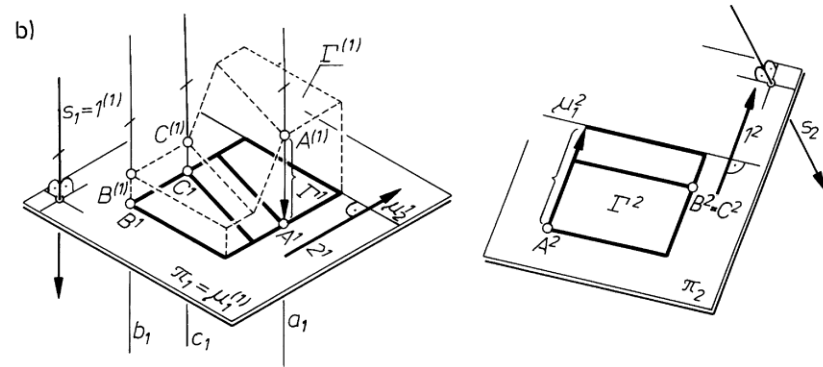
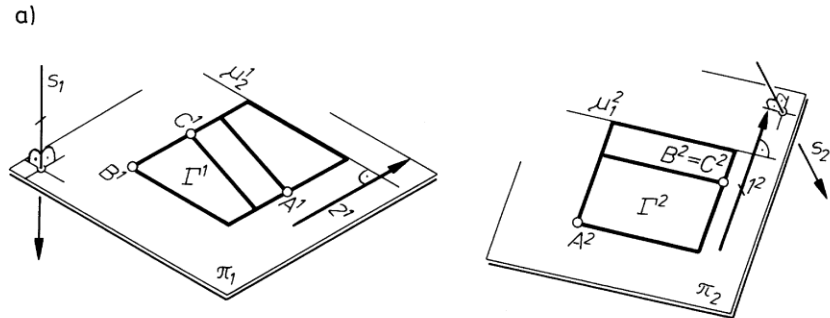
Modele geometryczne

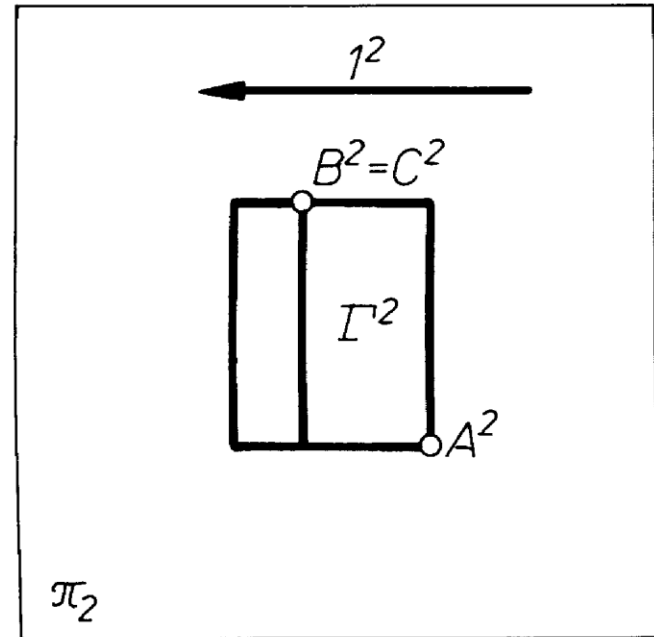
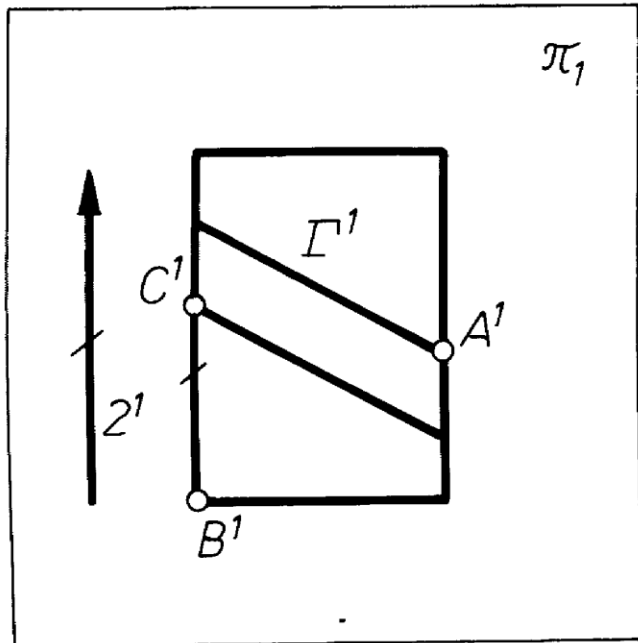
Metody odwzorowań wykreślnych

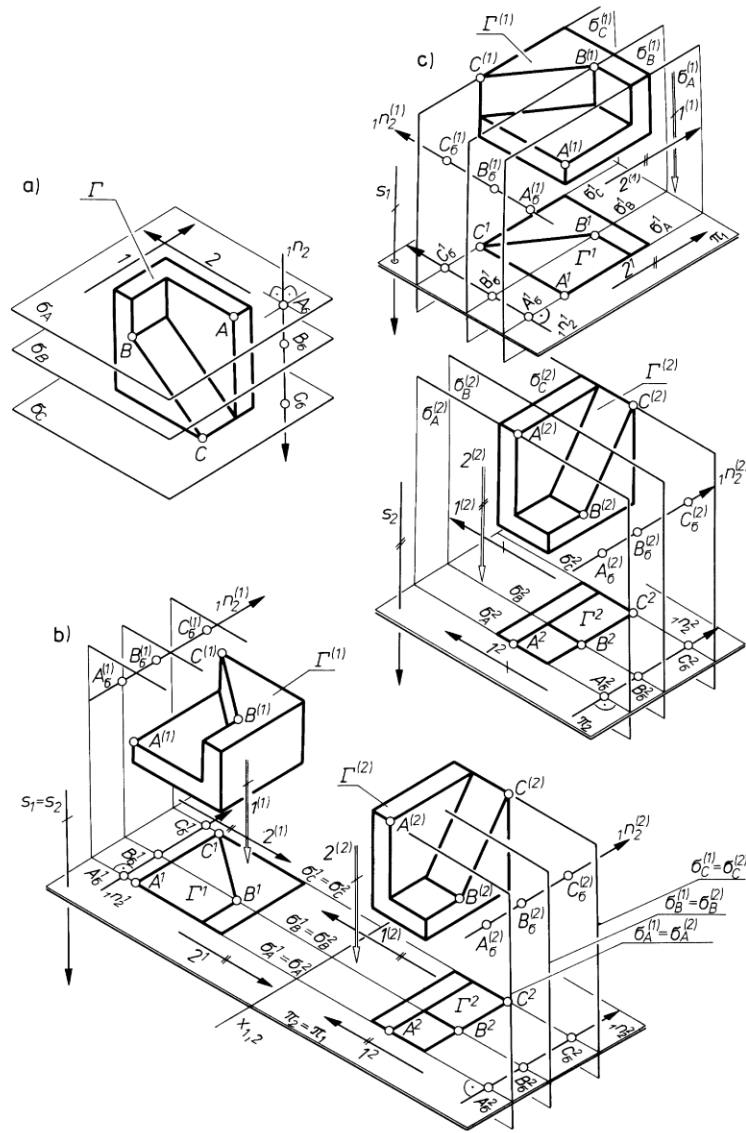
Rysunek techniczny



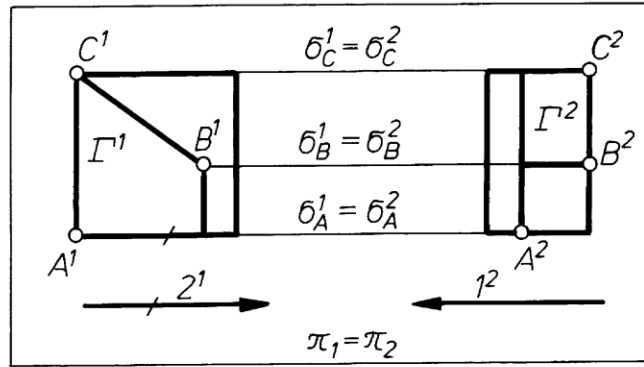




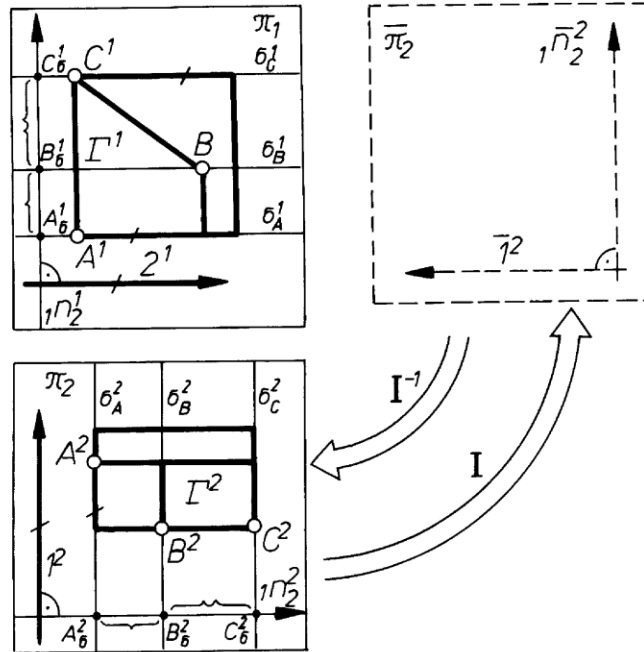




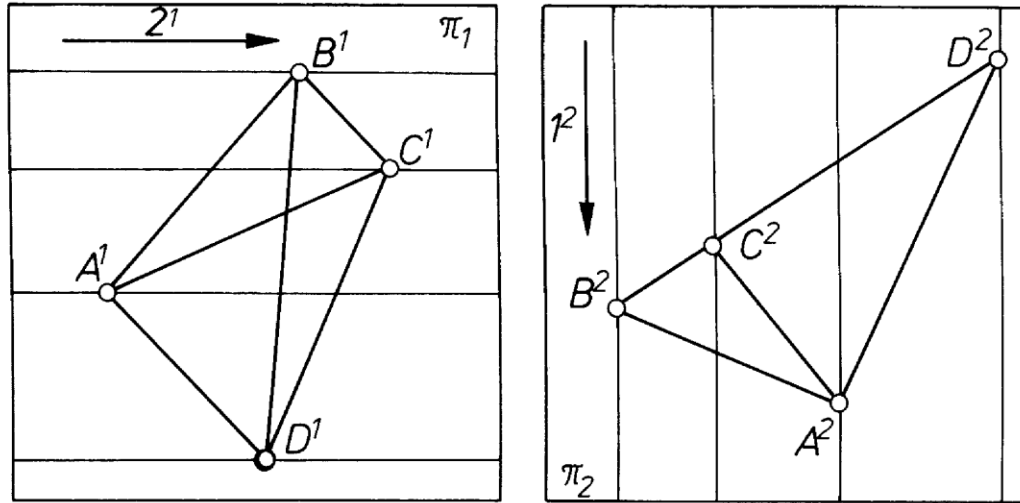
a)



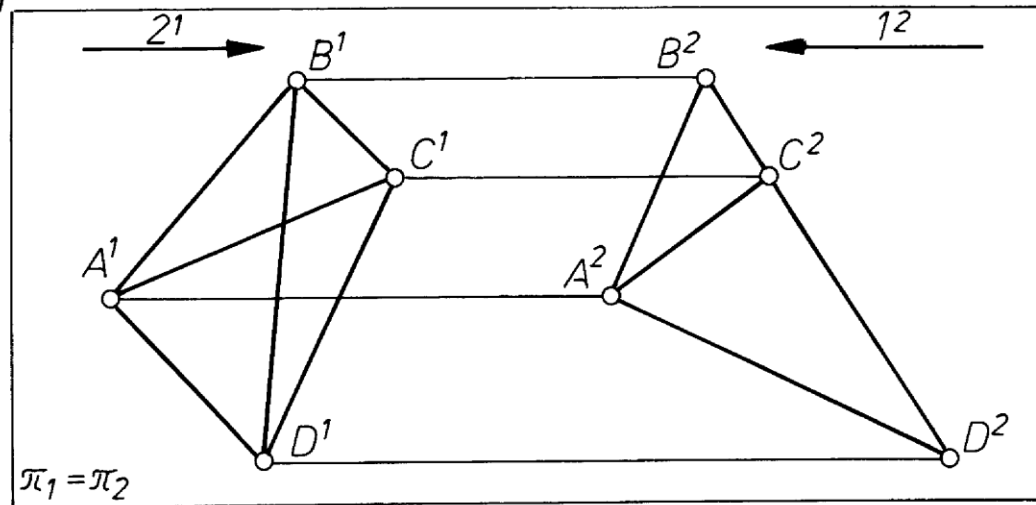
b)



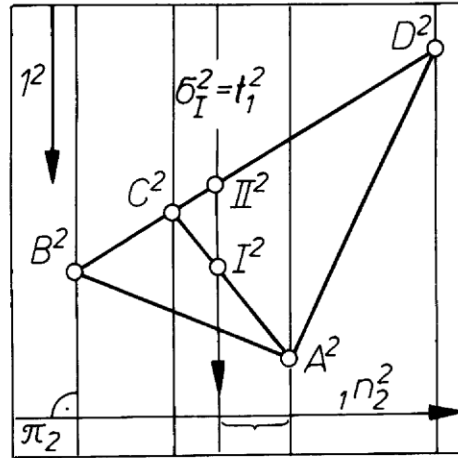
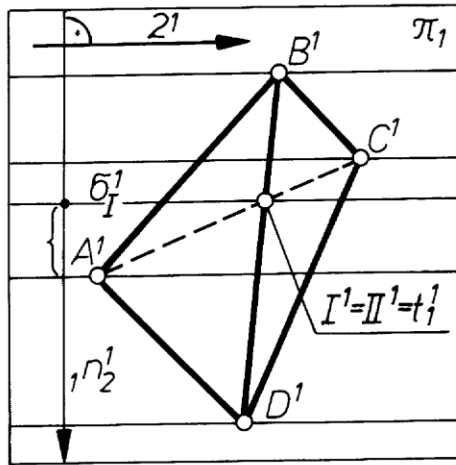
a)



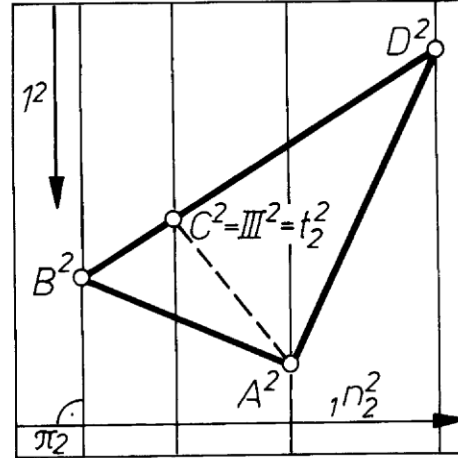
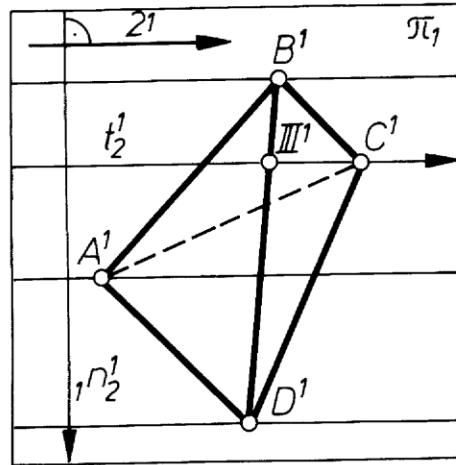
b)



a)

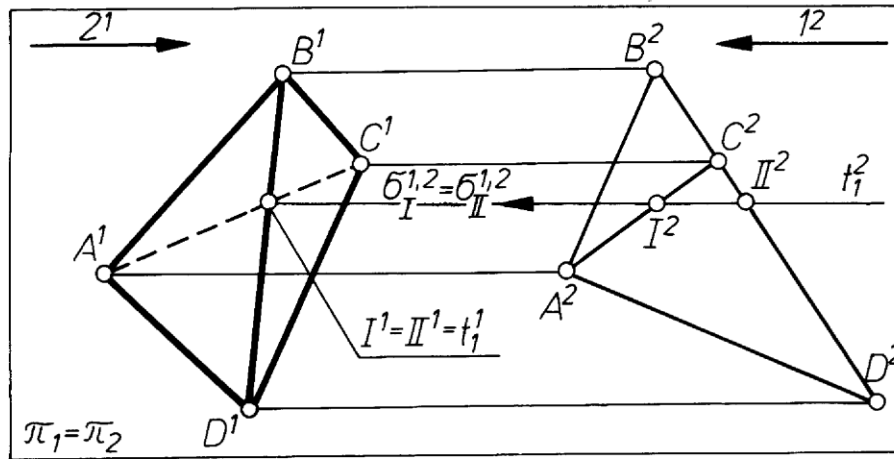


a')

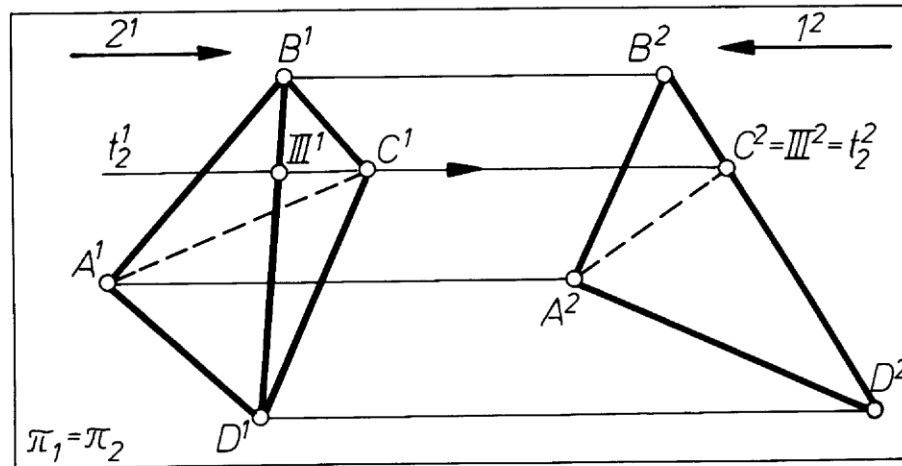


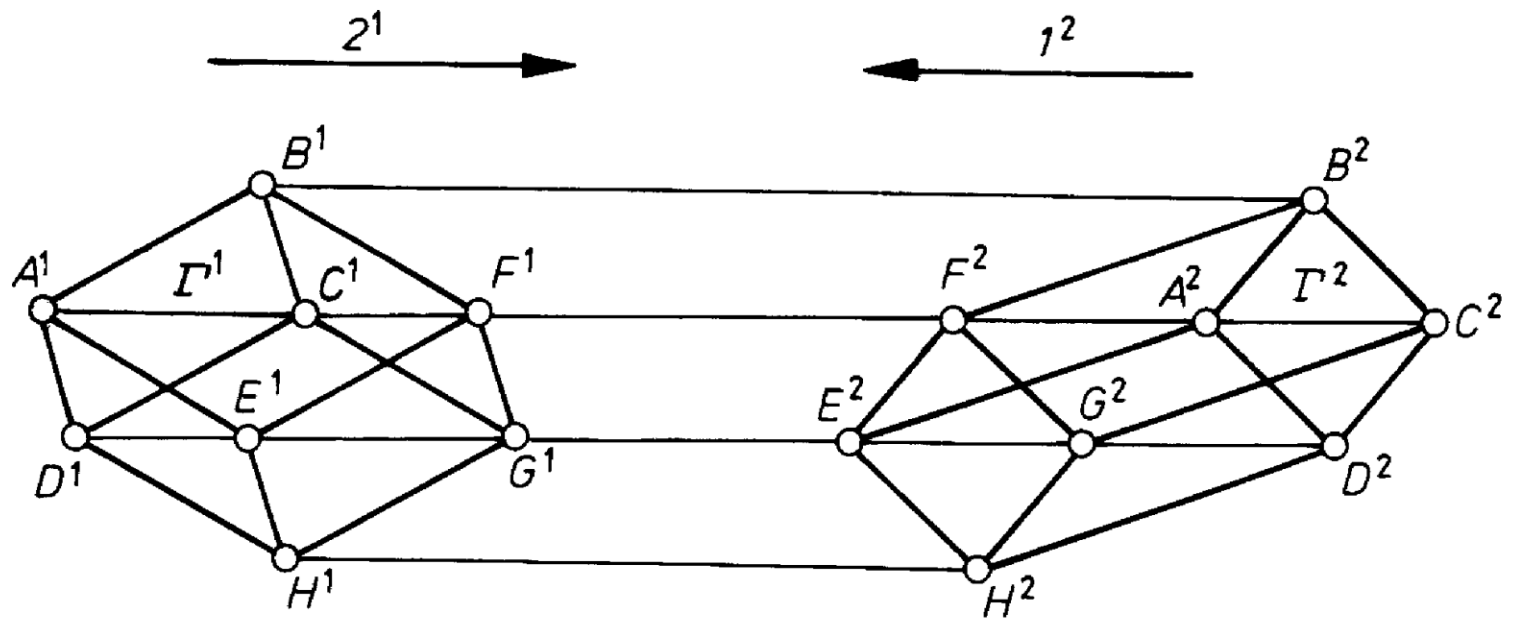


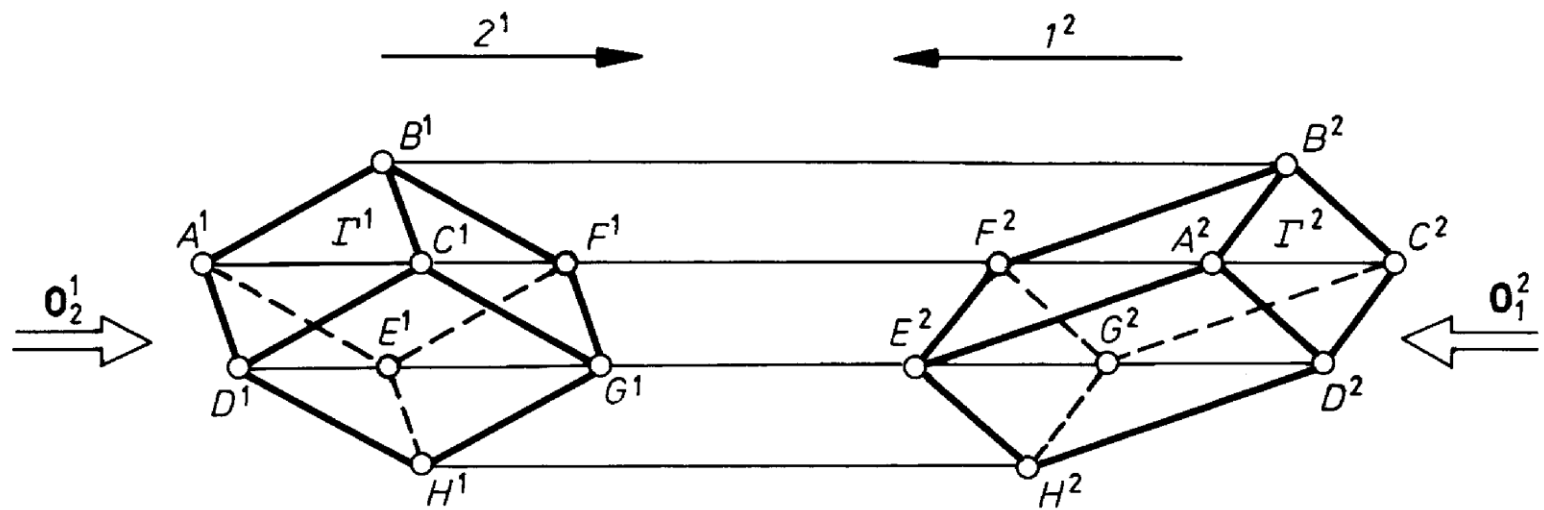
b)

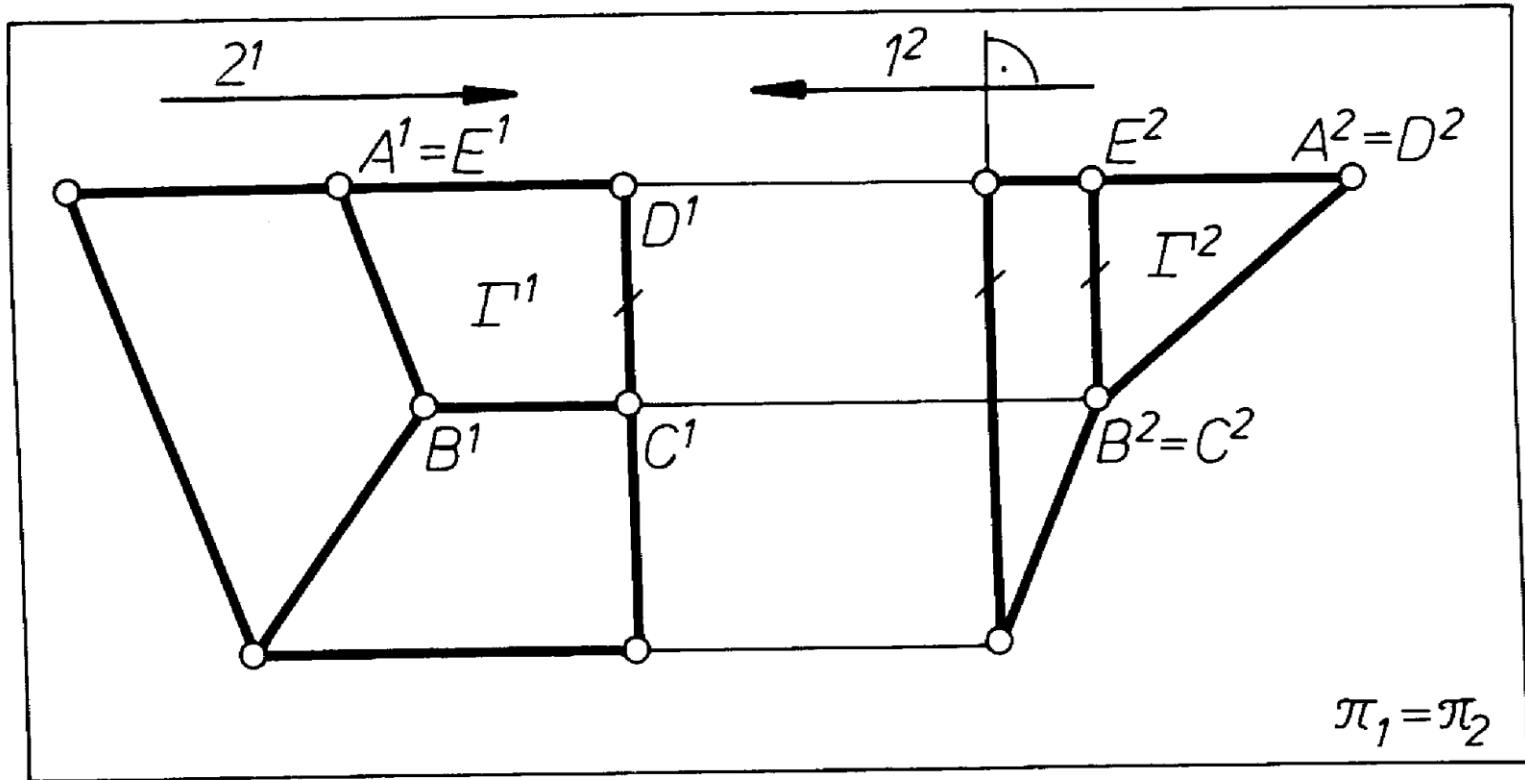


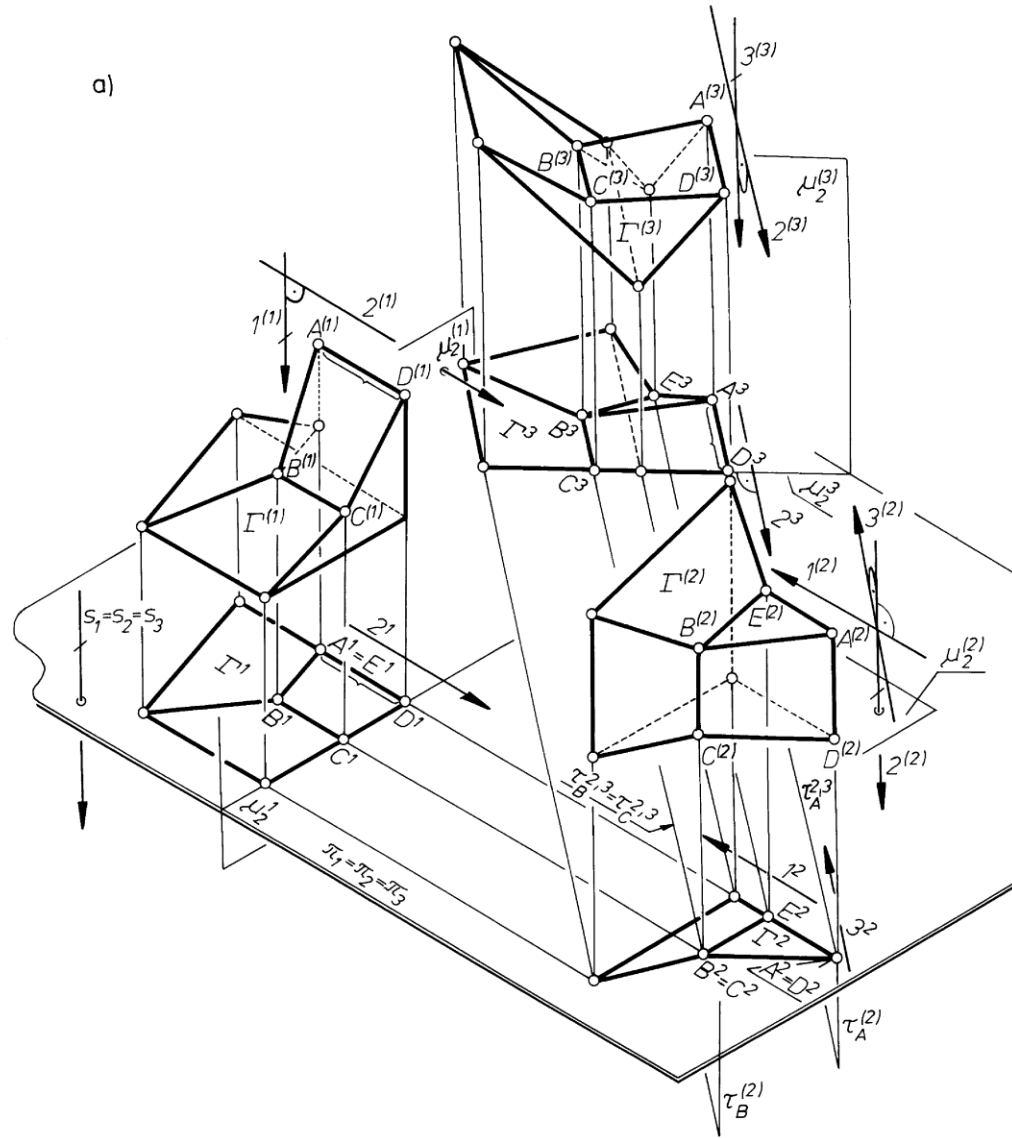
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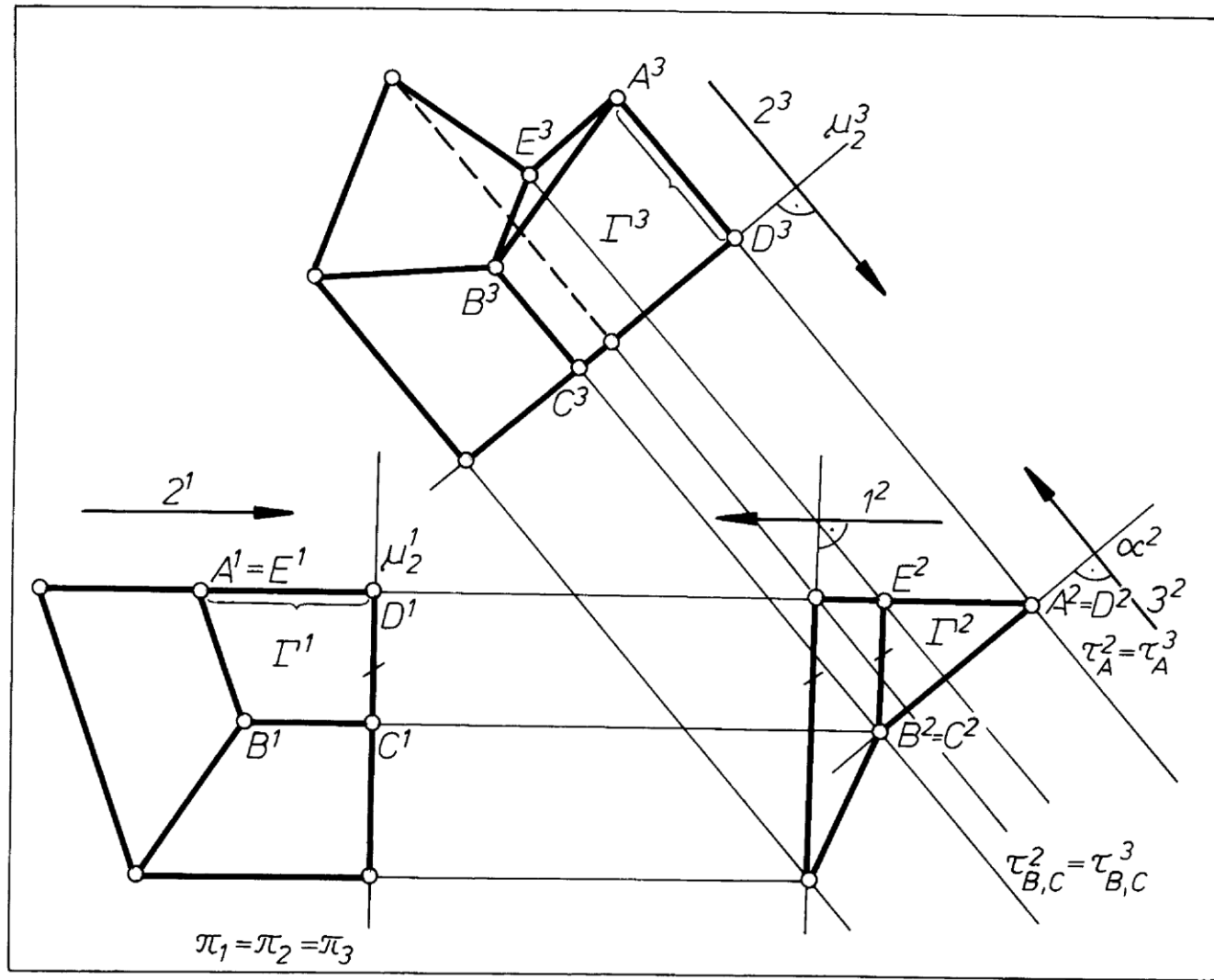


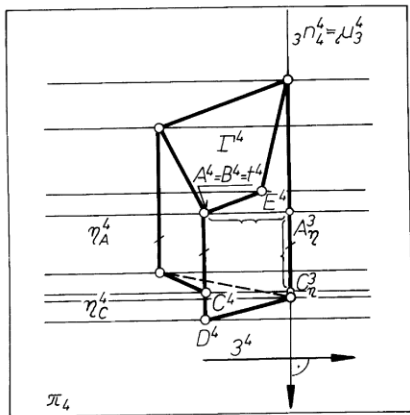
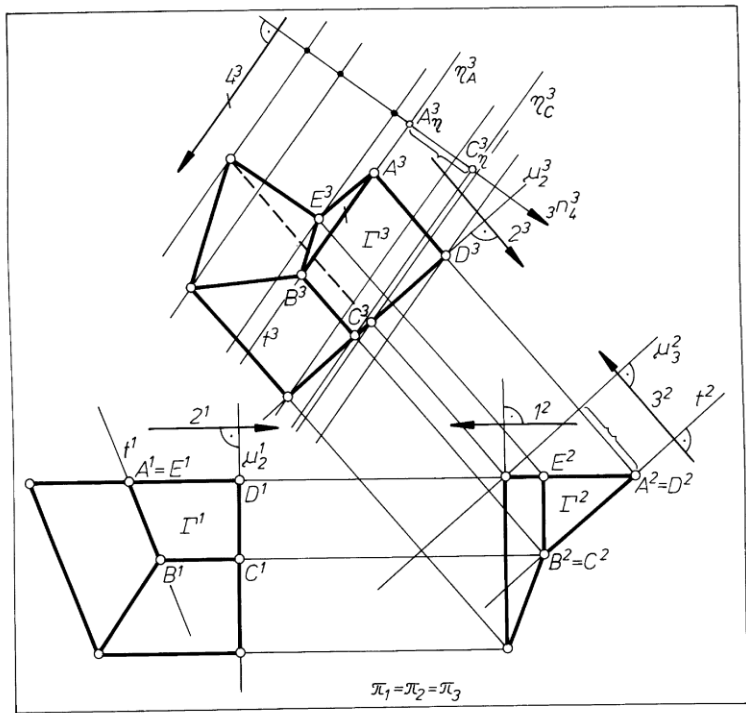












RODZAJE PROSTYCH W UKŁADZIE WIĄZĄCYM [1,2]

<p>Proste rzutujące – (r)  <math>f \in (r) \Leftrightarrow f \parallel 1 \text{ lub } f \parallel 2</math></p>	<p>Proste nierzutujące – (nr)  <math>f \in (nr) \Leftrightarrow f \nparallel 1 \text{ i } f \nparallel 2</math></p>
<p>Proste warstwowe – (w)  <math>f \in (w) \Leftrightarrow f \perp 1 \text{ lub } f \perp 2</math></p>	<p>Proste niewarstwowe – (nw)  <math>f \in (nw) \Leftrightarrow f \not\perp 1 \text{ i } f \not\perp 2</math></p>
<p>Proste nieprofilowe – (np)  <math>f \in (np) \Leftrightarrow (f \nparallel \sigma \text{ i } \sigma \parallel 1 \text{ i } \sigma \parallel 2) \text{ lub } f \parallel 1 \text{ lub } f \parallel 2</math></p>	<p>Proste profilowe – (p)  <math>f \in (p) \Leftrightarrow f \parallel \sigma \text{ i } \sigma \parallel 1 \text{ i } \sigma \parallel 2</math>  <math>\text{ i } f \nparallel 1 \text{ i } f \nparallel 2</math></p>

<p>Proste rzutujące – (r)  <math>f \in (r) \Leftrightarrow f \parallel 1 \text{ lub } f \parallel 2</math></p>	<p>Proste ogólne warstwowe – (ow)  <math>f \in (ow) \Leftrightarrow (f \perp 1 \text{ lub } f \perp 2) \text{ i } (f \nparallel 1 \text{ i } f \nparallel 2)</math></p>	<p>Proste dowolne – (d)  <math>f \in (d) \Leftrightarrow f \nparallel \sigma \text{ i } \sigma \parallel 1 \text{ i } \sigma \parallel 2</math>  <math>\text{ i } f \not\perp 1 \text{ i } f \not\perp 2</math></p>	<p>Proste profilowe – (p)  <math>f \in (p) \Leftrightarrow f \parallel \sigma \text{ i } \sigma \parallel 1 \text{ i } \sigma \parallel 2</math>  <math>\text{ i } f \nparallel 1 \text{ i } f \nparallel 2</math></p>
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<p>Proste pierwszorzutujące – (r1)  <math>f \in (r1) \Leftrightarrow f \parallel 1</math></p>	<p>Proste drugorzutujące – (r2)  <math>f \in (r2) \Leftrightarrow f \parallel 2</math></p>
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<p>Proste pierwszowarstwowe – (w1)  <math>f \in (w1) \Leftrightarrow f \perp 1 \text{ i } f \not\perp 2 \text{ i } f \nparallel 2</math></p>	<p>Proste dwuwarstwowe – (w'')  <math>f \in (w'') \Leftrightarrow f \perp 1 \text{ i } f \perp 2</math></p>	<p>Proste drugowarstwowe – (w2)  <math>f \in (w2) \Leftrightarrow f \perp 2 \text{ i } f \not\perp 1 \text{ i } f \nparallel 1</math></p>
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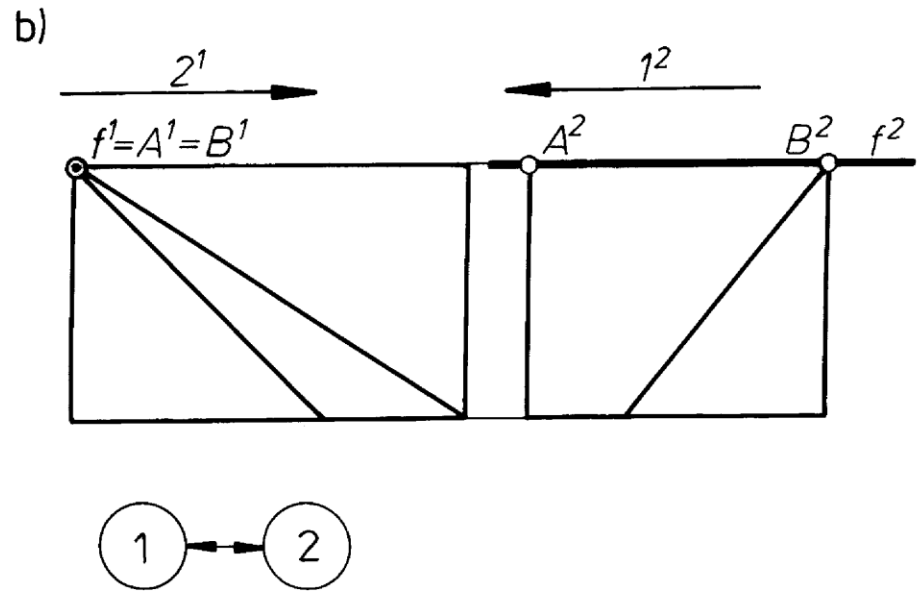
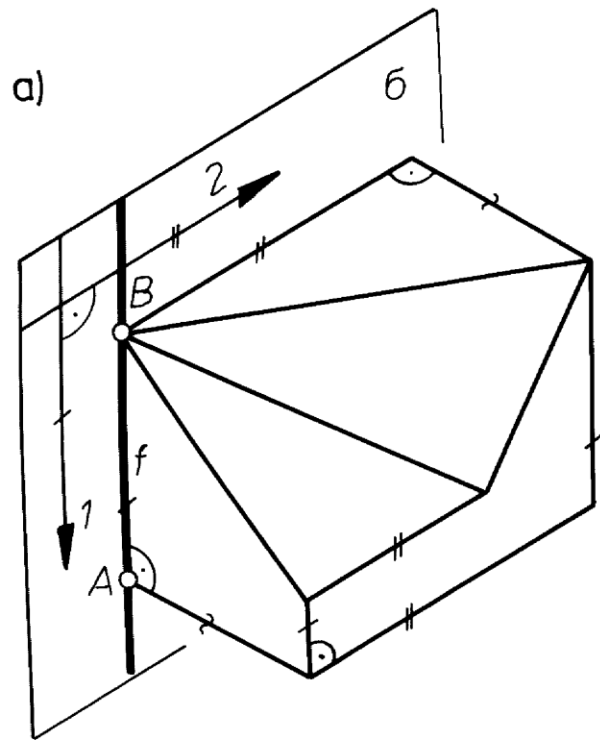
RODZAJE PŁASZCZYZN W UKŁADZIE WIĄŻĄCYM [1,2]

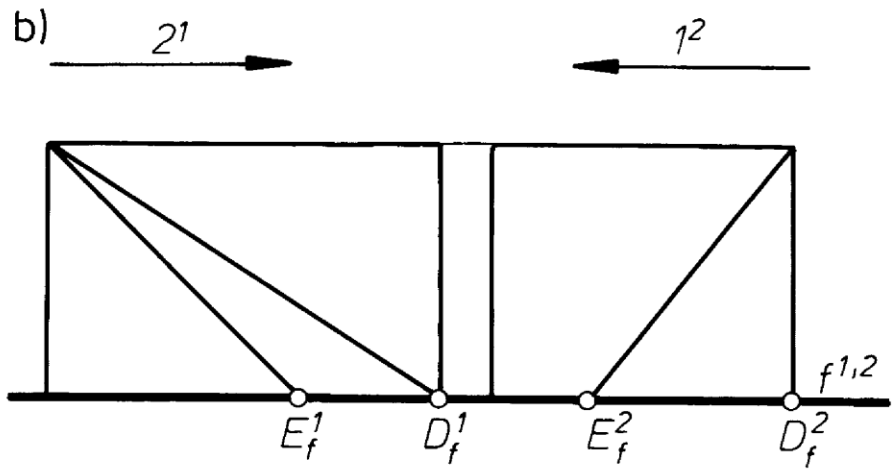
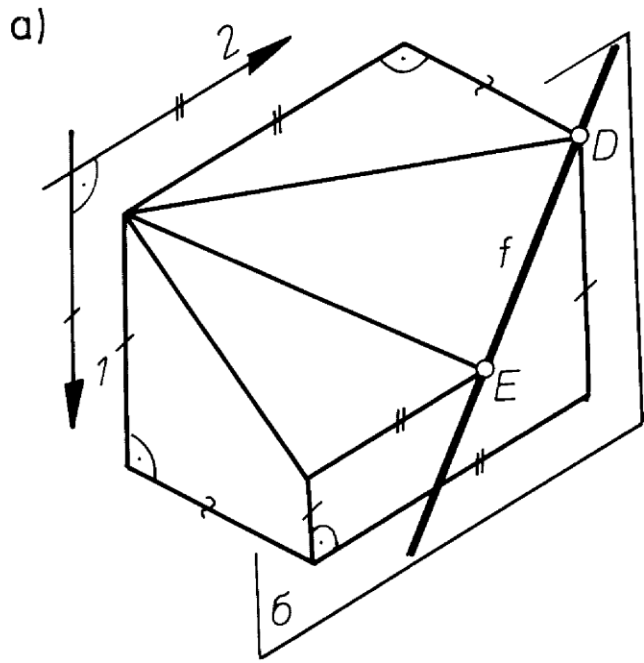
<p>Płaszczyzny warstwowe – (W)  <math>\varphi \in (W) \Leftrightarrow \varphi \perp 1 \text{ lub } \varphi \perp 2</math></p>	<p>Płaszczyzny niewarstwowe – (nW)  <math>\varphi \in (nW) \Leftrightarrow \varphi \not\perp 1 \text{ i } \varphi \not\perp 2</math></p>
<p>Płaszczyzny rzutujące – (R)  <math>\varphi \in (R) \Leftrightarrow \varphi \parallel 1 \text{ lub } \varphi \parallel 2</math></p>	<p>Płaszczyzny nierzutujące – (nR)  <math>\varphi \in (nR) \Leftrightarrow \varphi \not\parallel 1 \text{ i } \varphi \not\parallel 2</math></p>

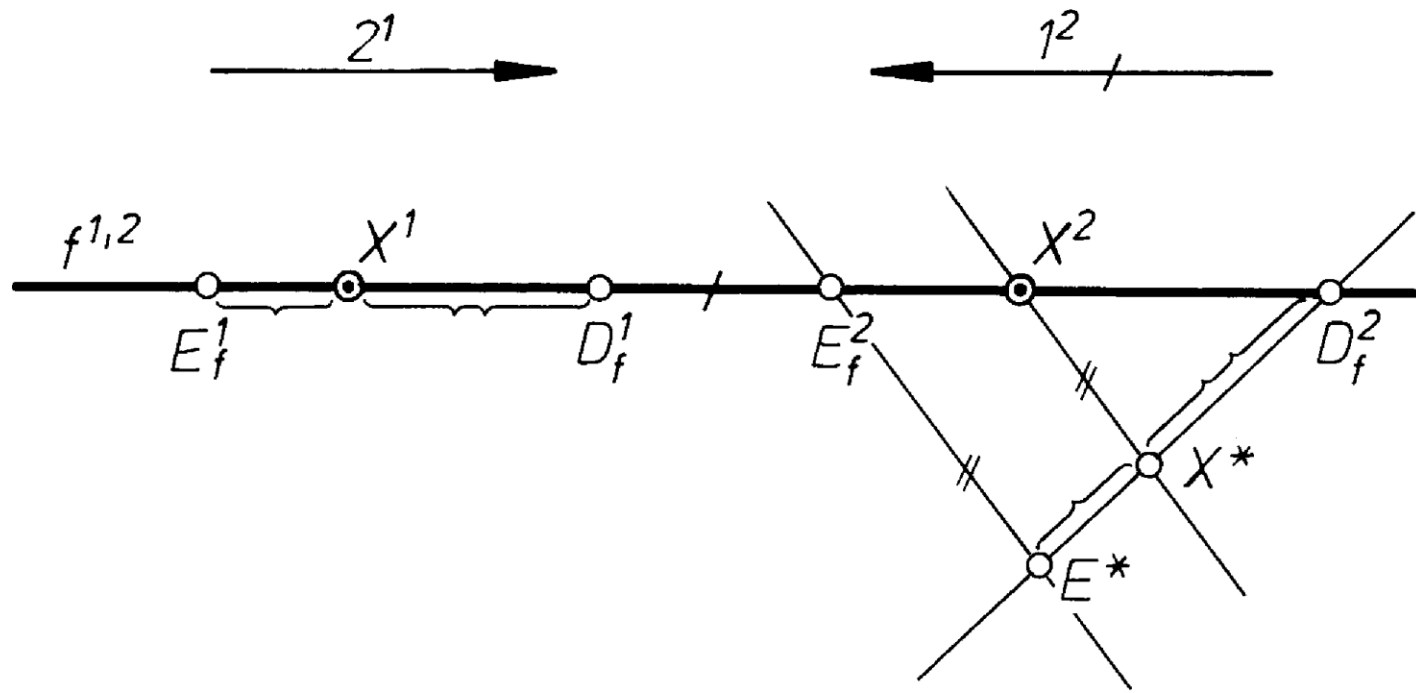
<p>Płaszczyzny warstwowe – (W)  <math>\varphi \in (W) \Leftrightarrow \varphi \perp 1 \text{ lub } \varphi \perp 2</math></p>	<p>Płaszczyzny ogólne rzutujące (oR)  <math>\varphi \in (oR) \Leftrightarrow (\varphi \parallel 1 \text{ lub } \varphi \parallel 2) \text{ i } \varphi \not\perp 1 \text{ i } \varphi \not\perp 2</math></p>	<p>Płaszczyzny nierzutujące – (nR)  <math>\varphi \in (nR) \Leftrightarrow \varphi \not\parallel 1 \text{ i } \varphi \not\parallel 2</math></p>
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<p>Płaszczyzny  pierwszowarstwowe – (W1)  <math>\varphi \in (W1) \Leftrightarrow \varphi \perp 1</math></p>	<p>Płaszczyzny  drugowarstwowe – (W2)  <math>\varphi \in (W2) \Leftrightarrow \varphi \perp 2</math></p>
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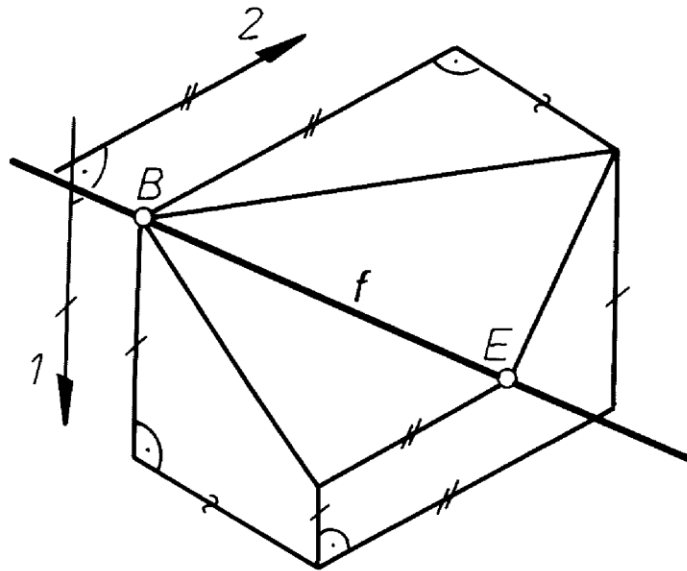
<p>Płaszczyzny  pierwszorzutujące – (R1)  <math>\varphi \in (R1) \Leftrightarrow \varphi \parallel 1</math>  i <math>\varphi \not\parallel 2</math> i <math>\varphi \not\perp 2</math></p>	<p>Płaszczyzny  dwrzutujące – (R'')  <math>\varphi \in (R'') \Leftrightarrow \varphi \parallel 1</math>  i <math>\varphi \parallel 2</math></p>	<p>Płaszczyzny  drugorzutujące – (R2)  <math>\varphi \in (R2) \Leftrightarrow \varphi \parallel 2</math>  i <math>\varphi \not\parallel 1</math> i <math>\varphi \not\perp 1</math></p>
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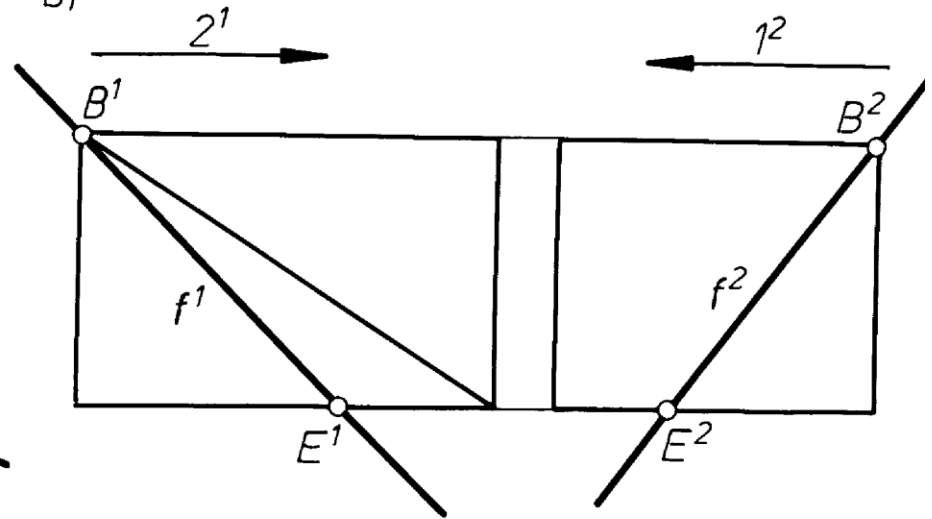


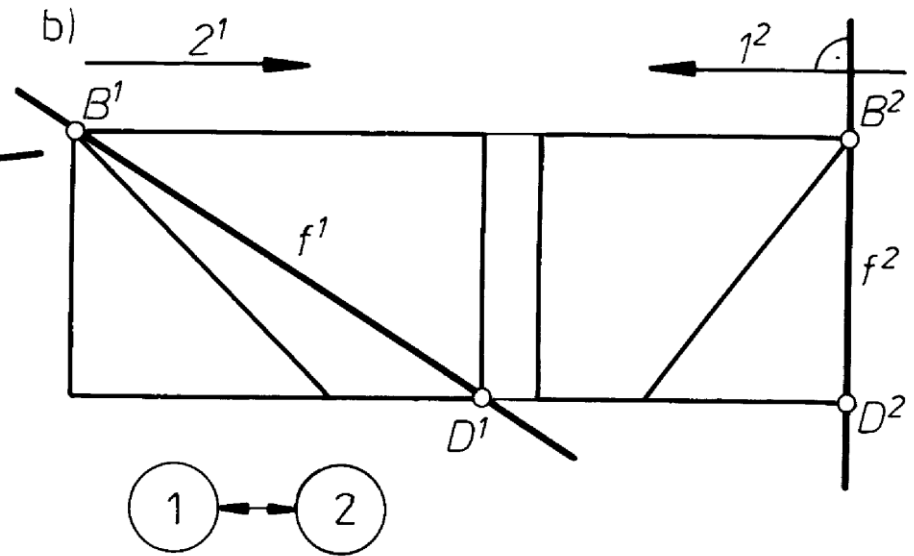
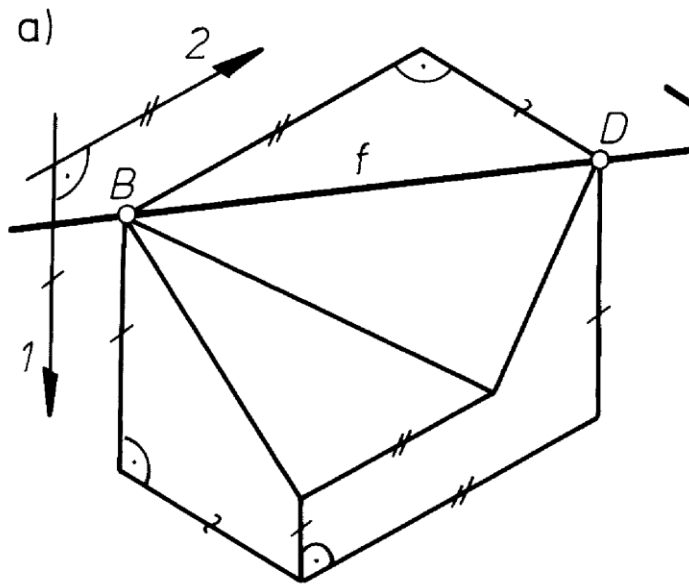


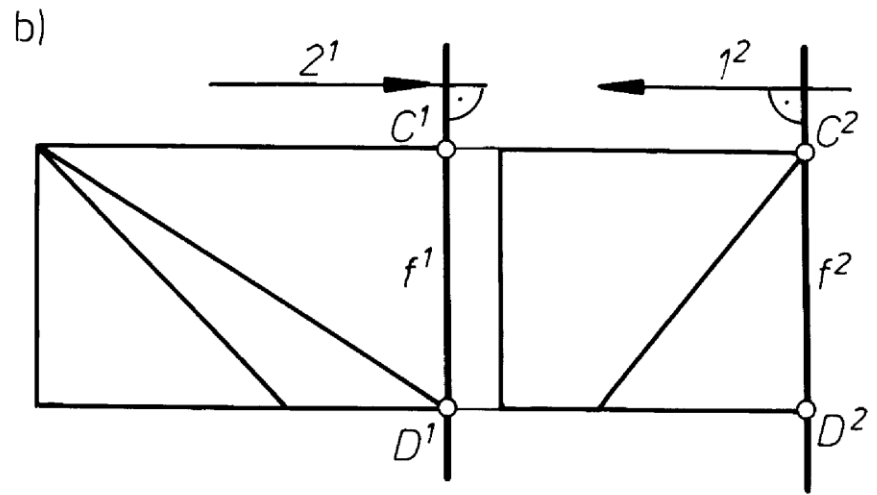
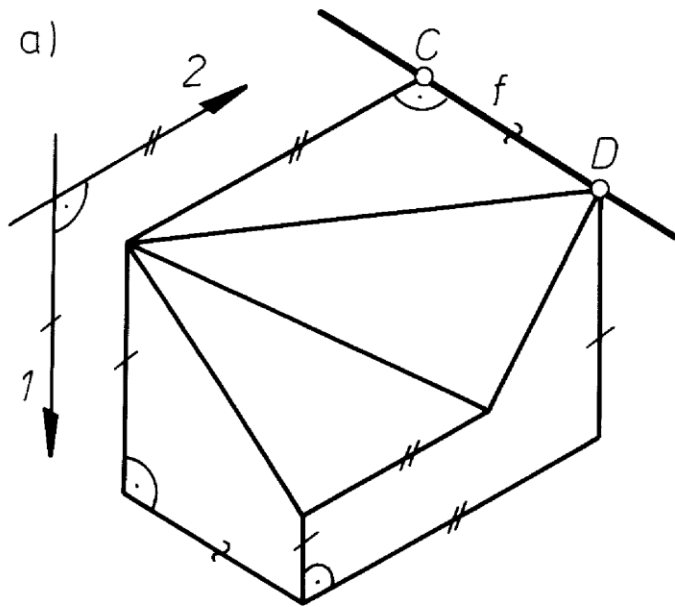
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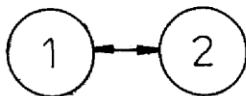
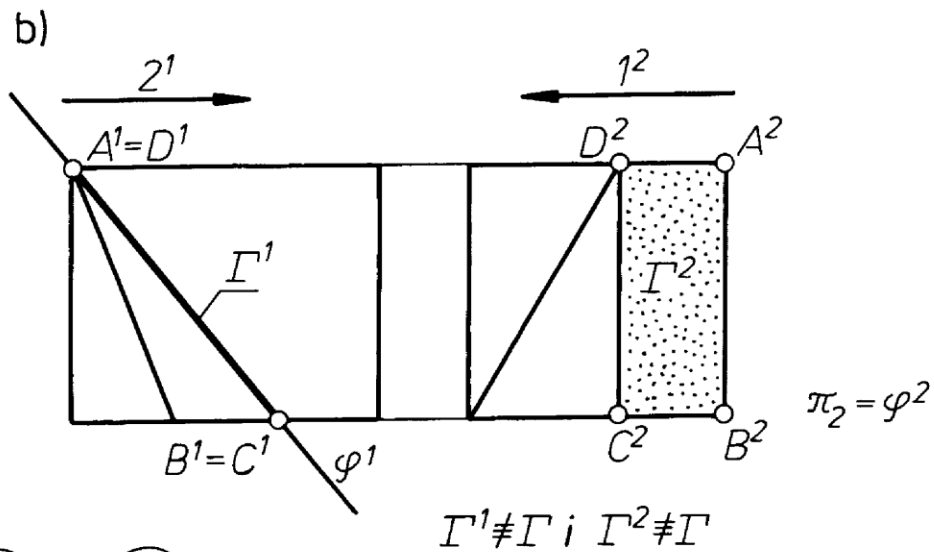
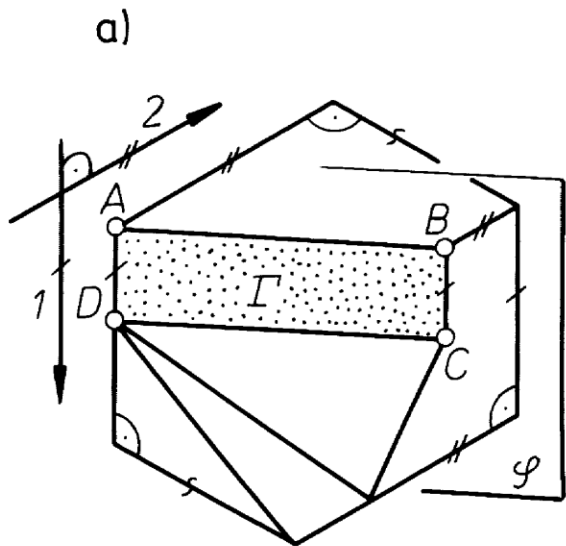


b)

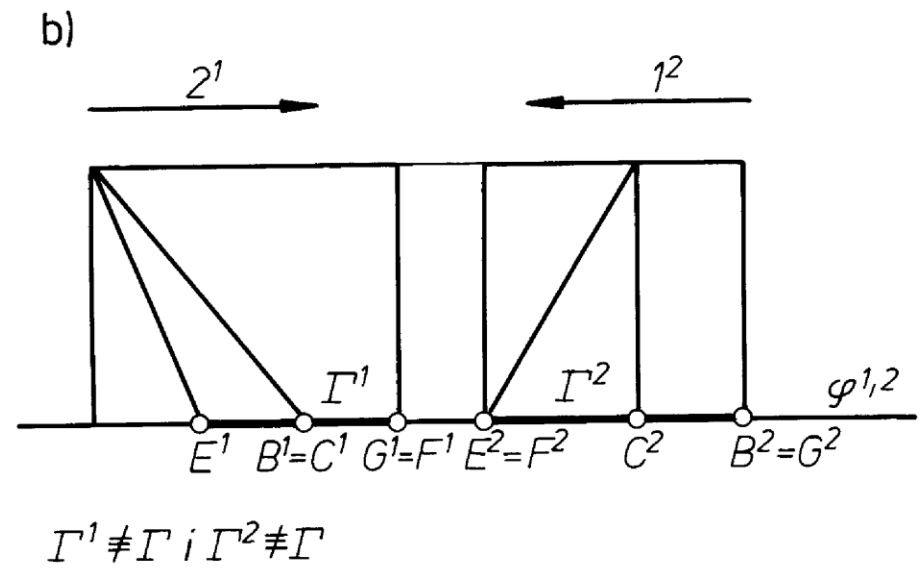
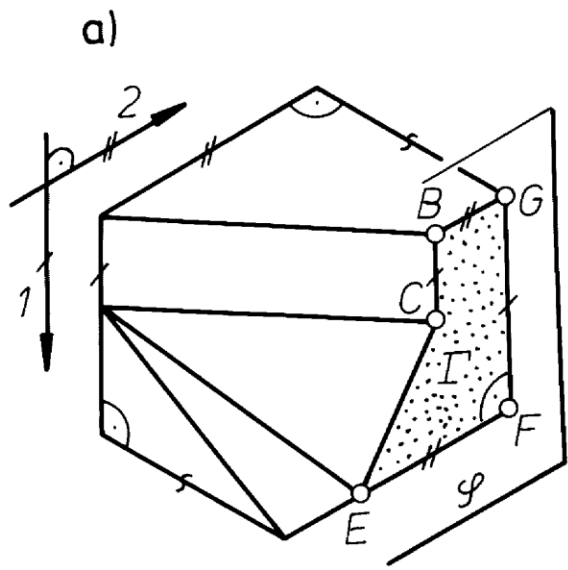


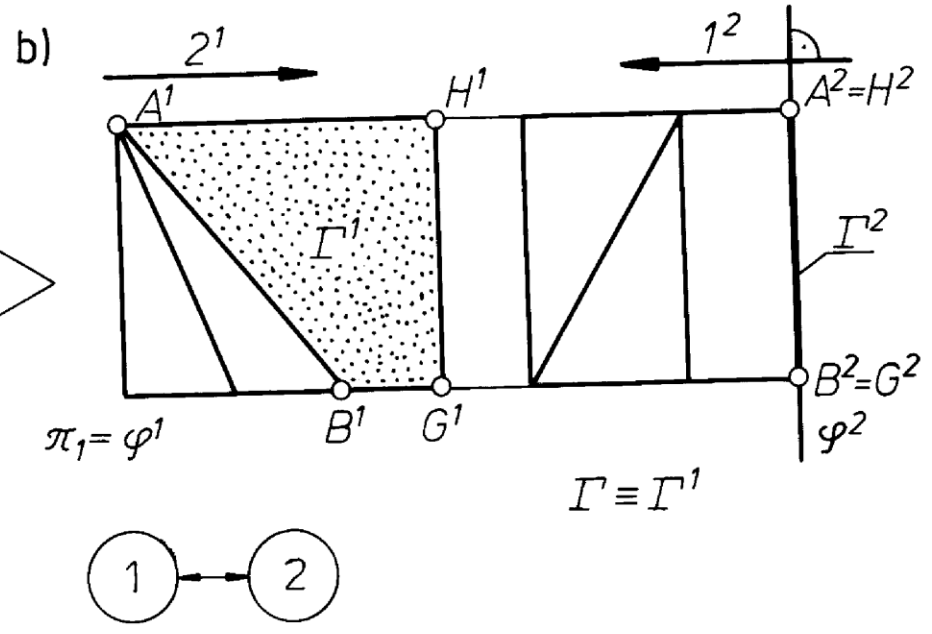
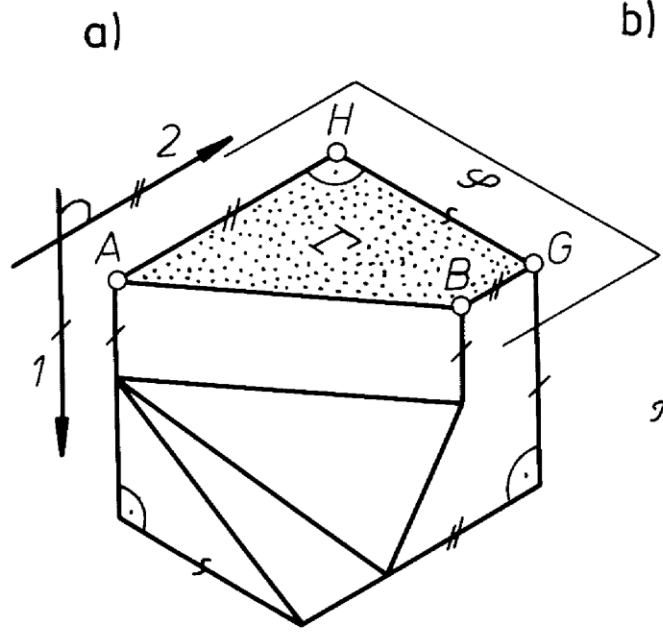


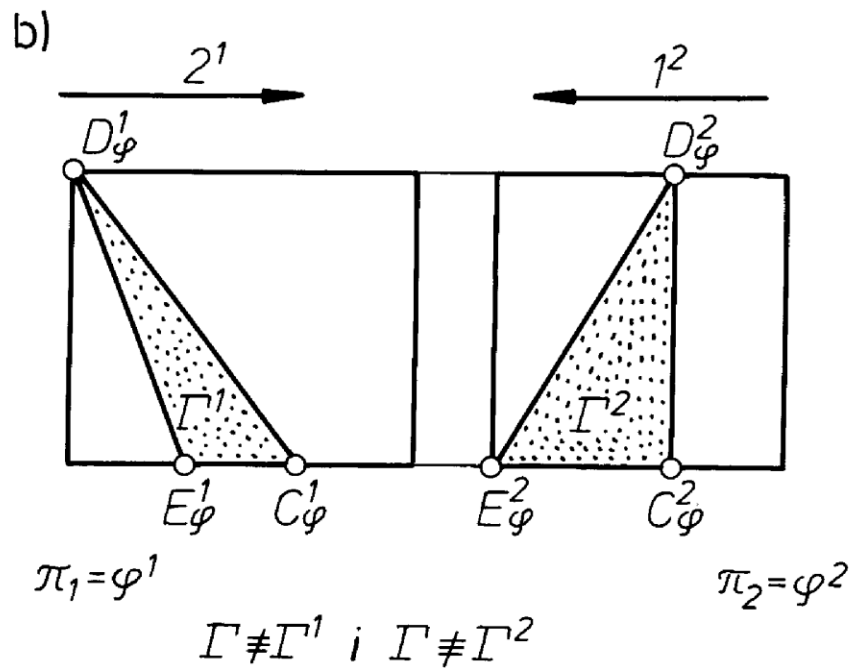
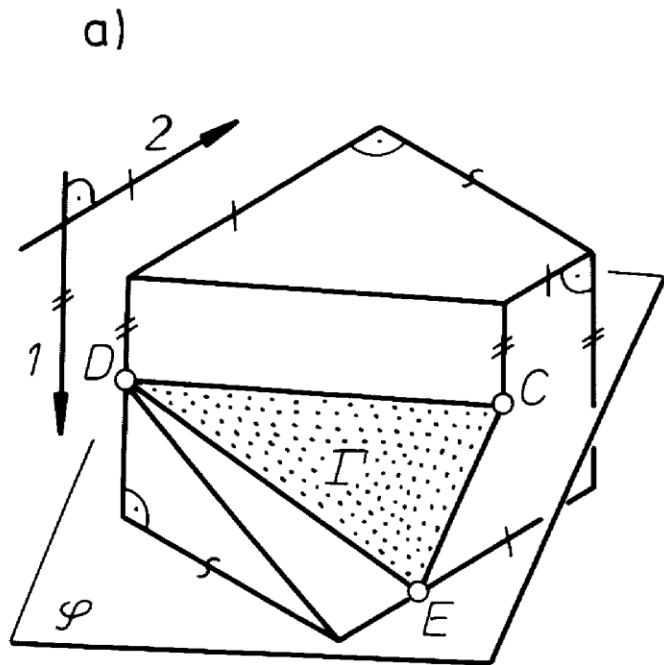


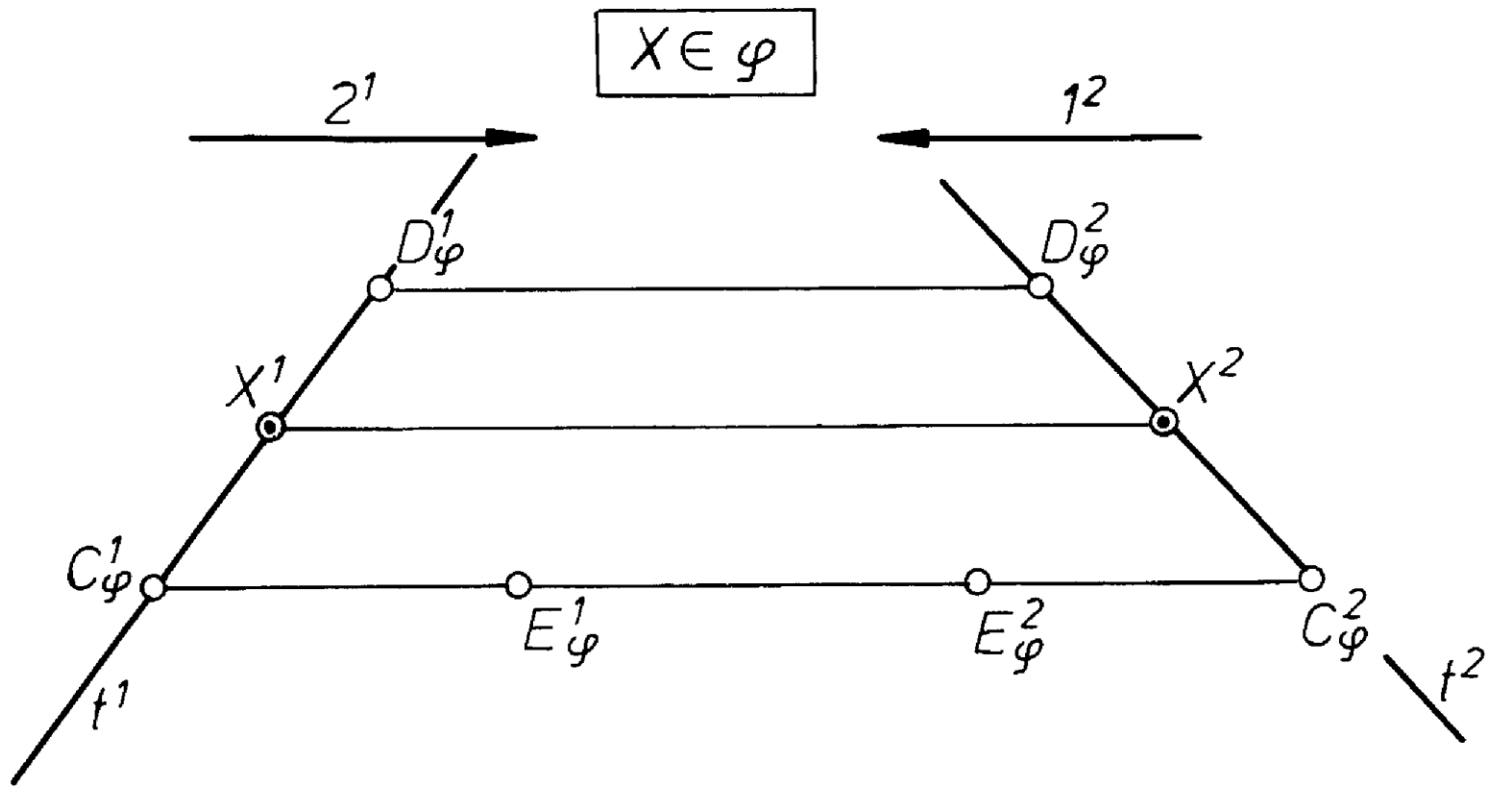


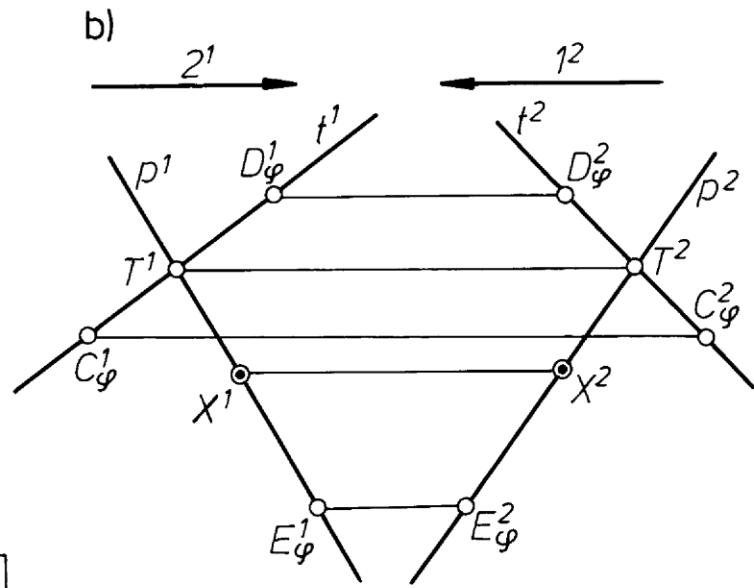
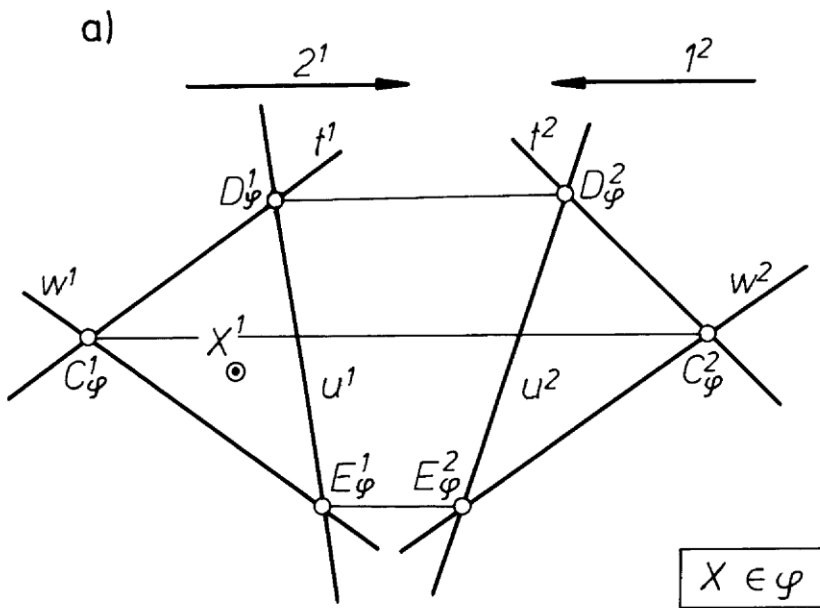


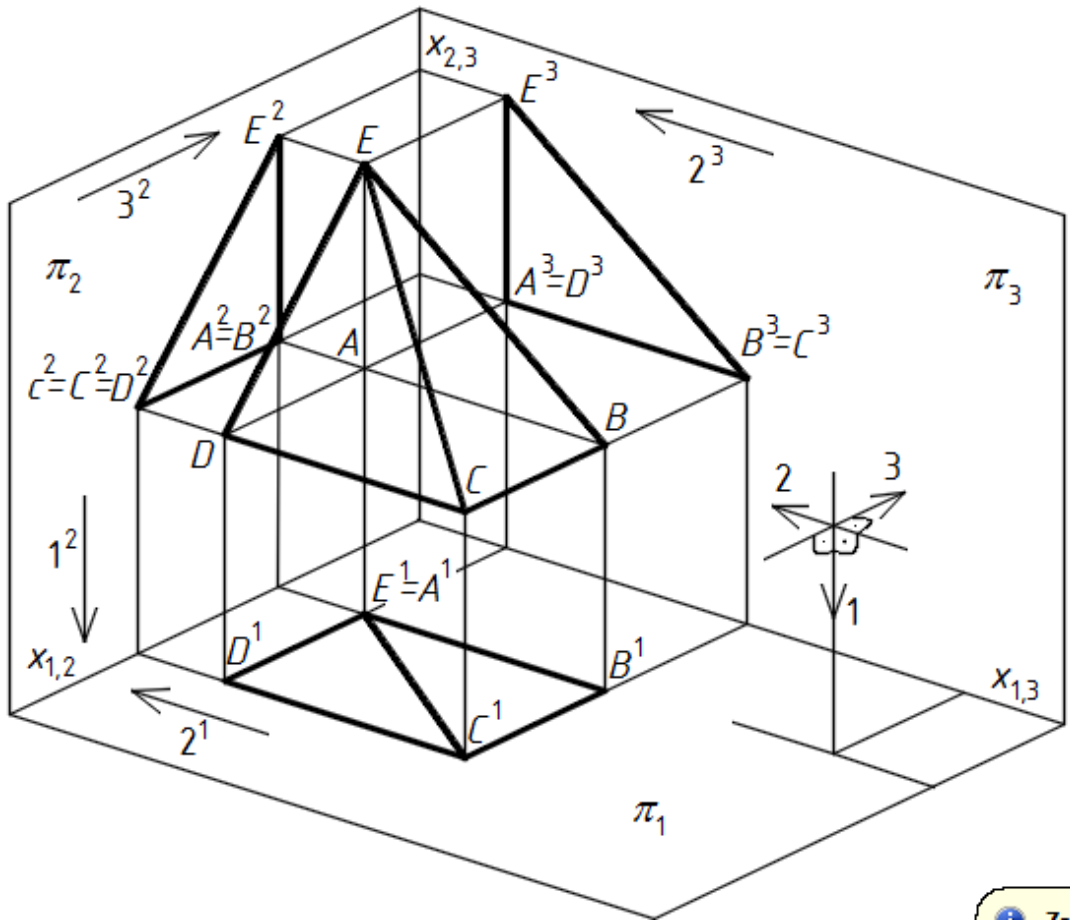


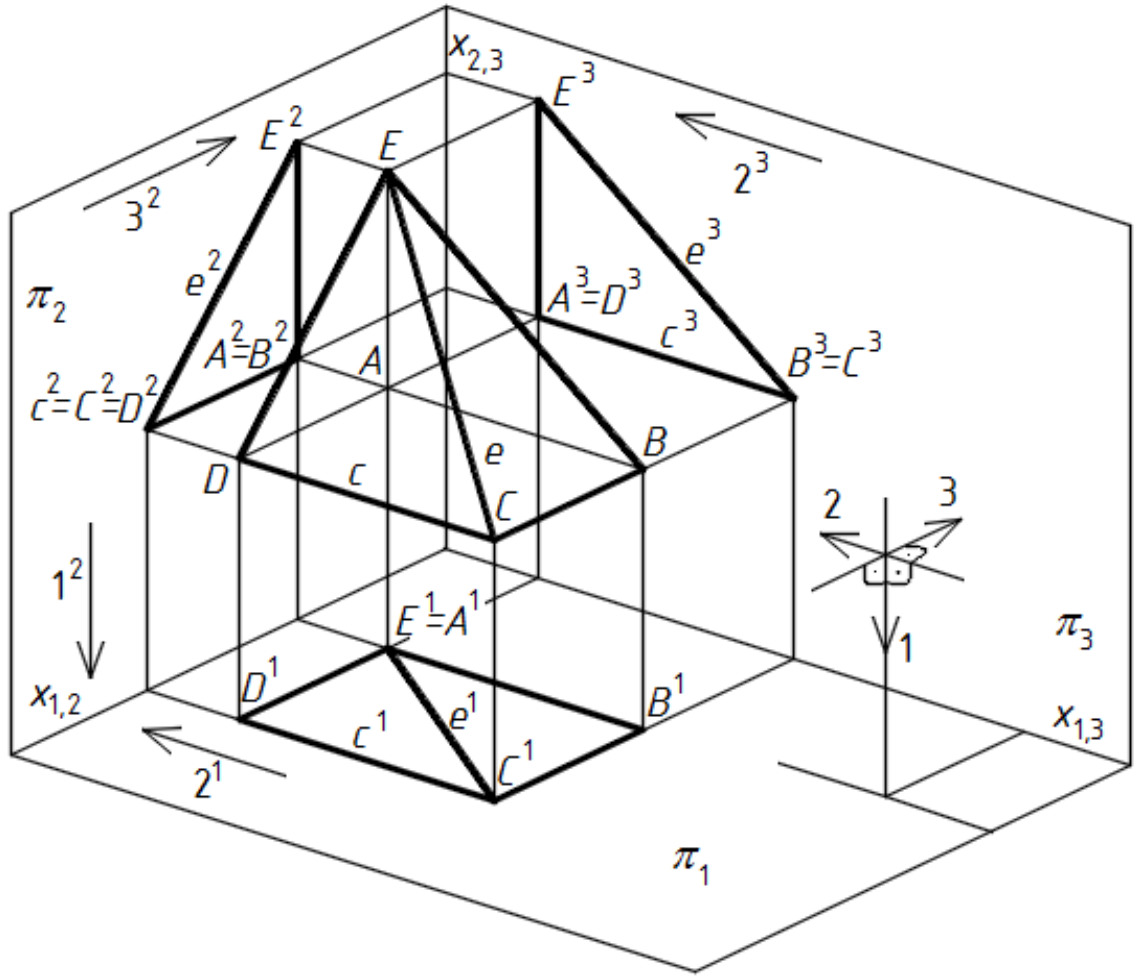


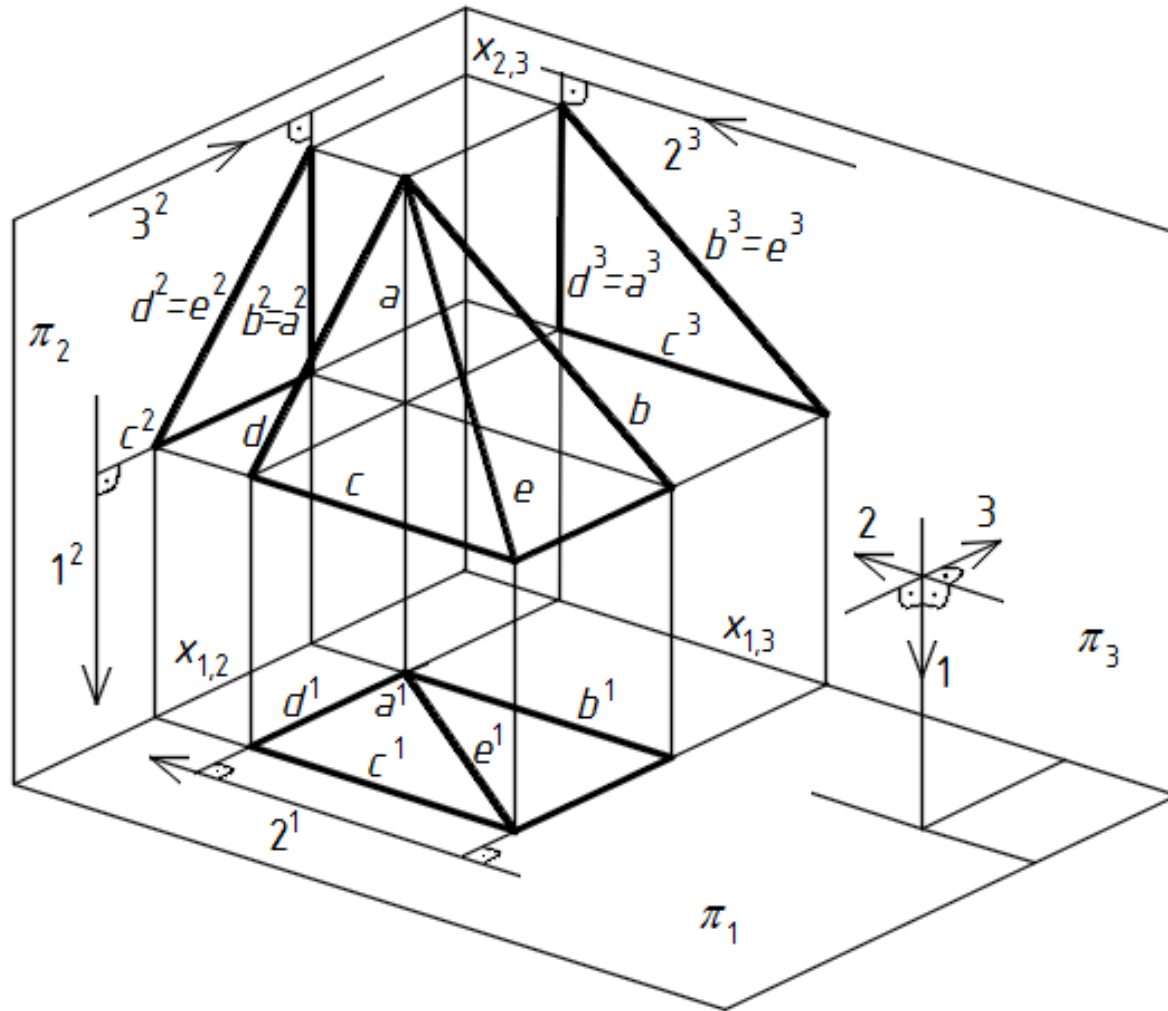




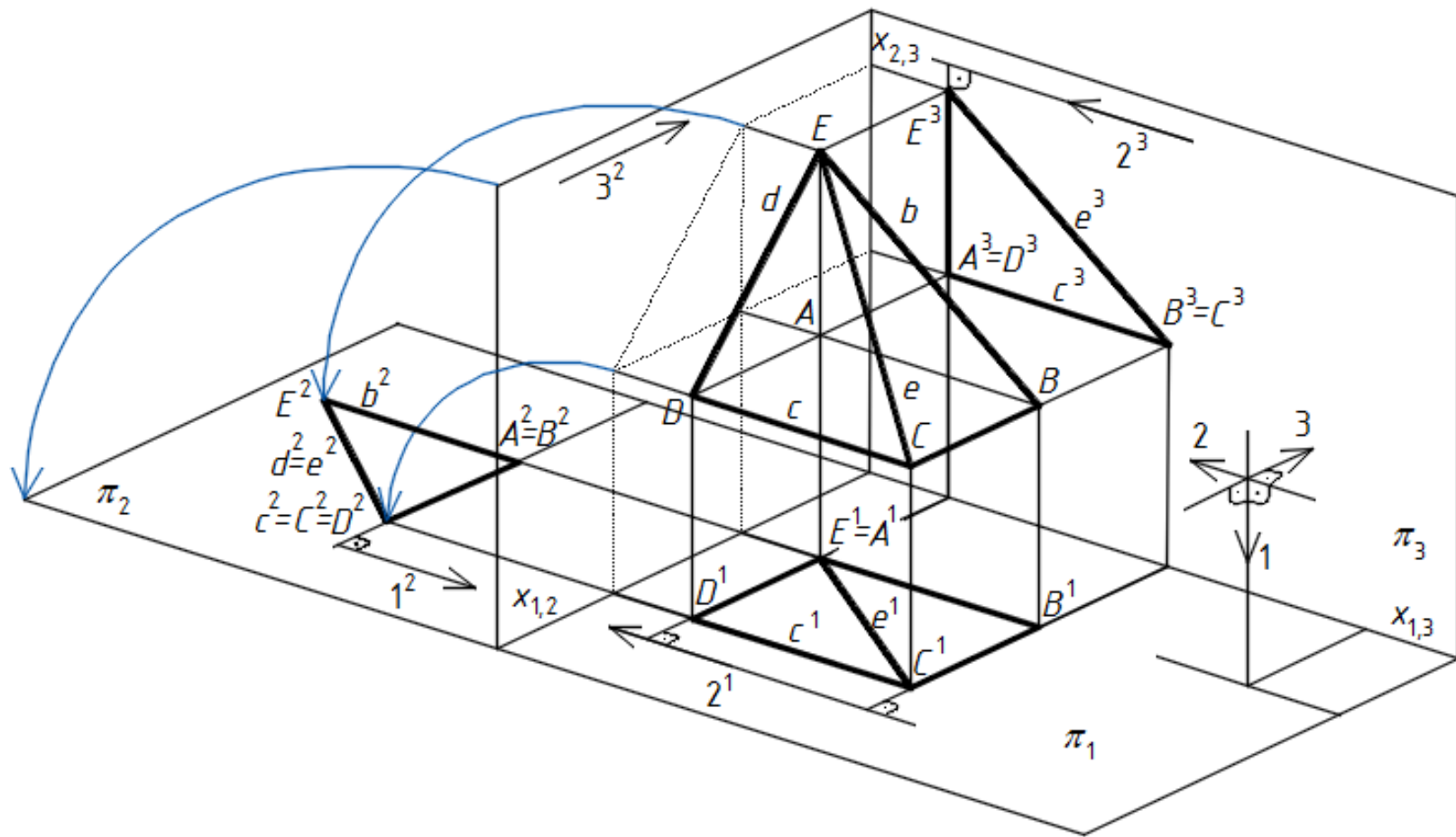


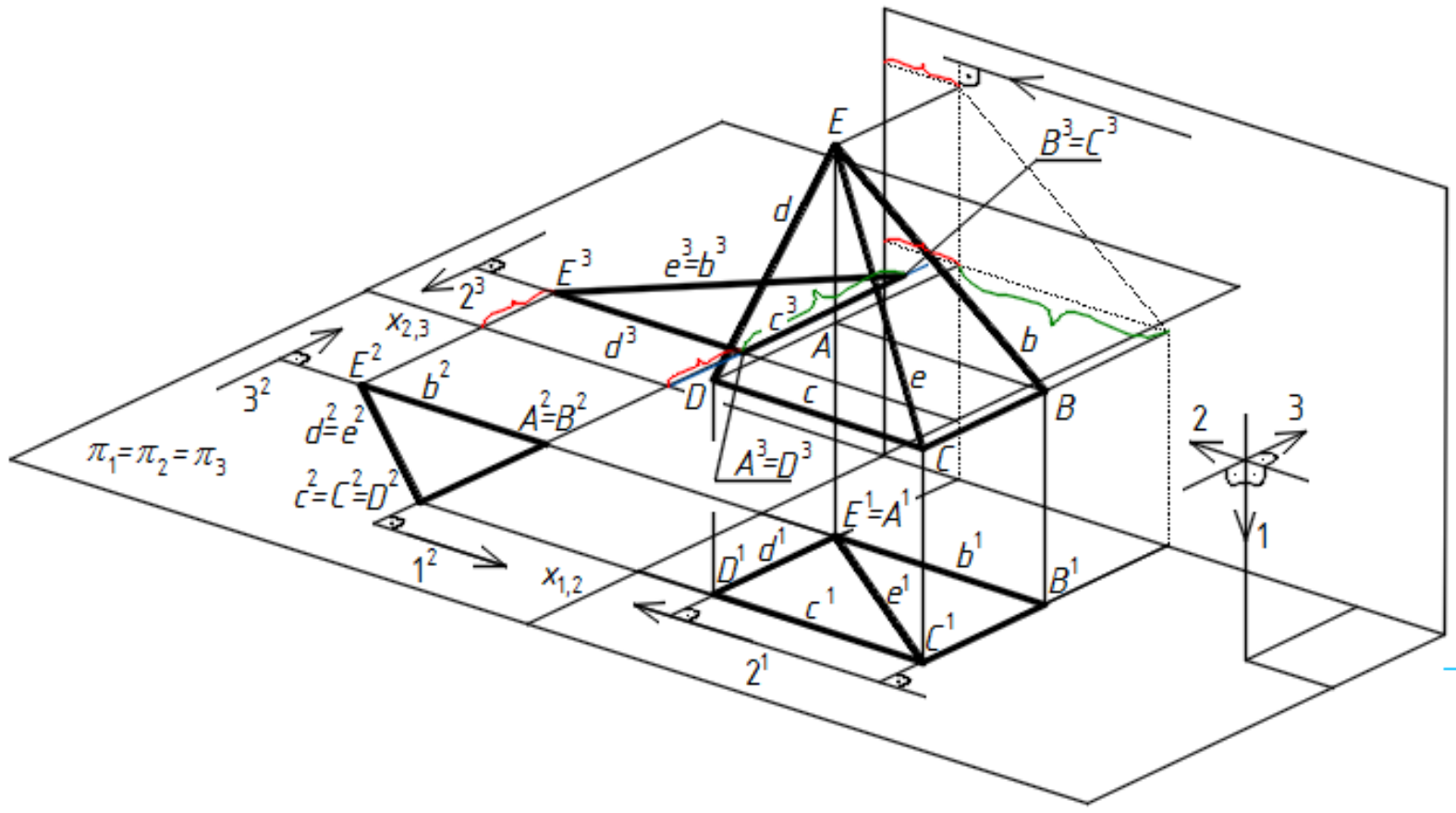


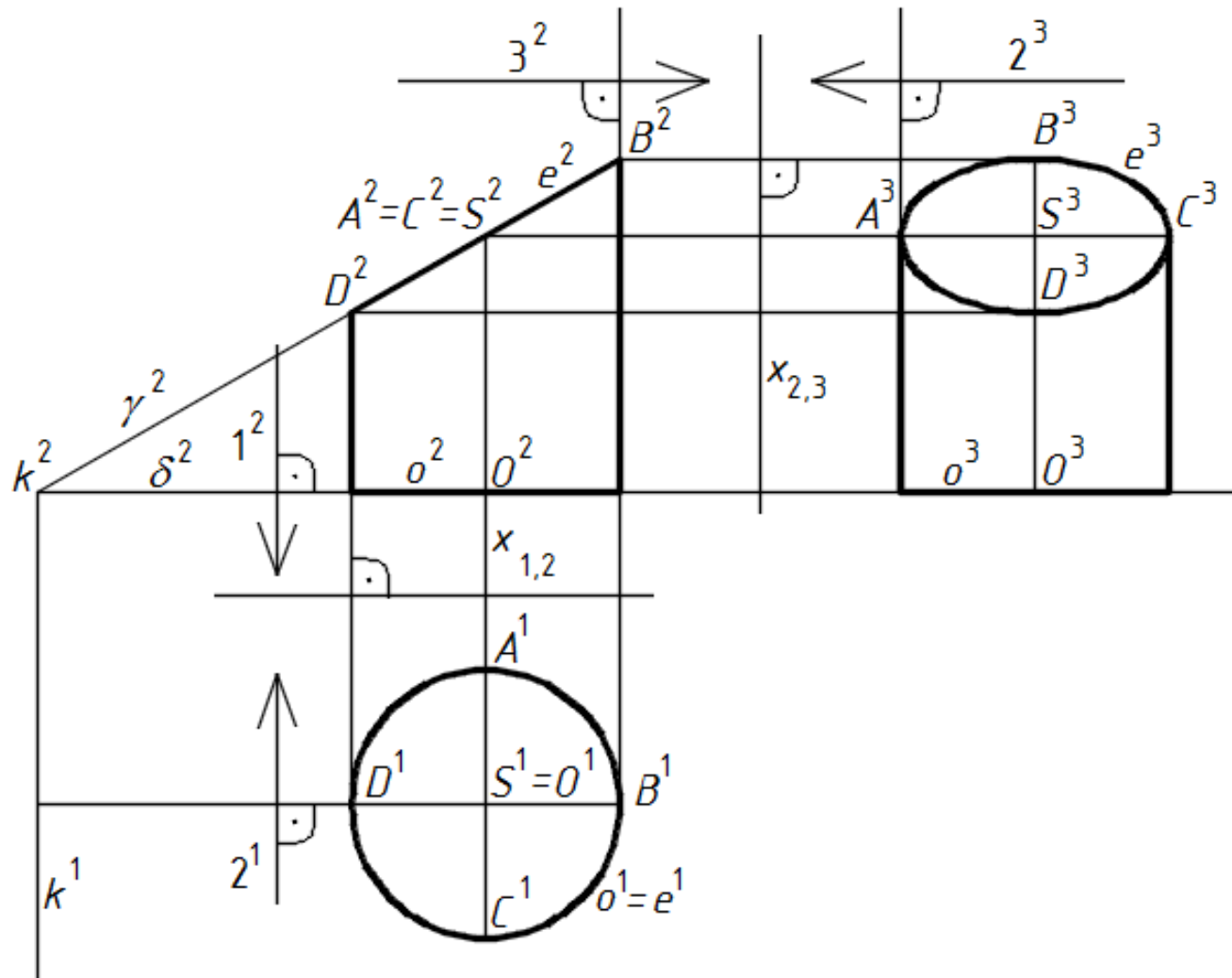


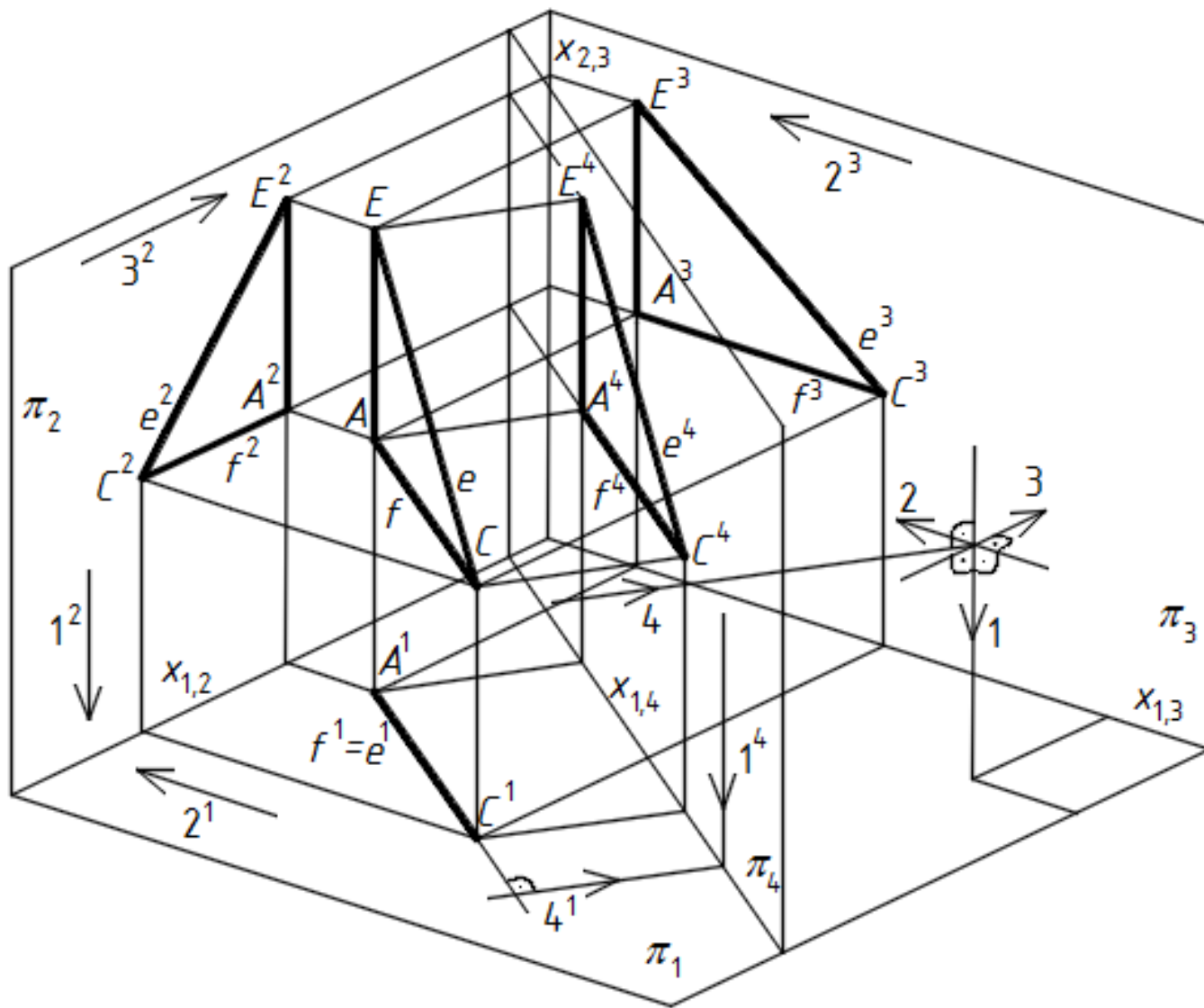


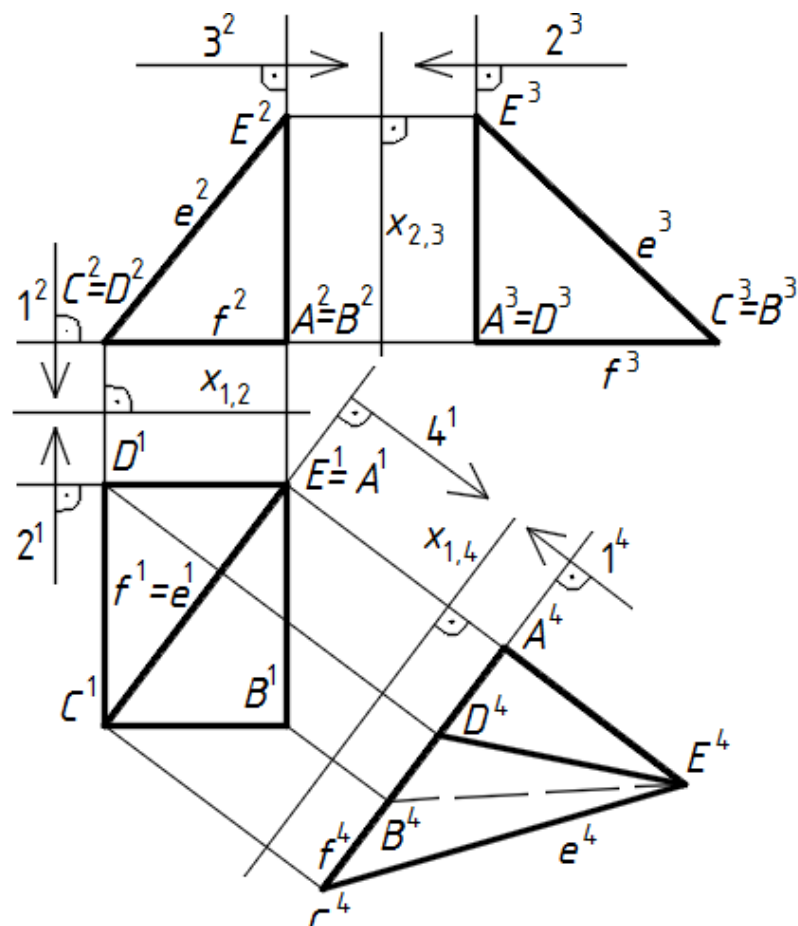
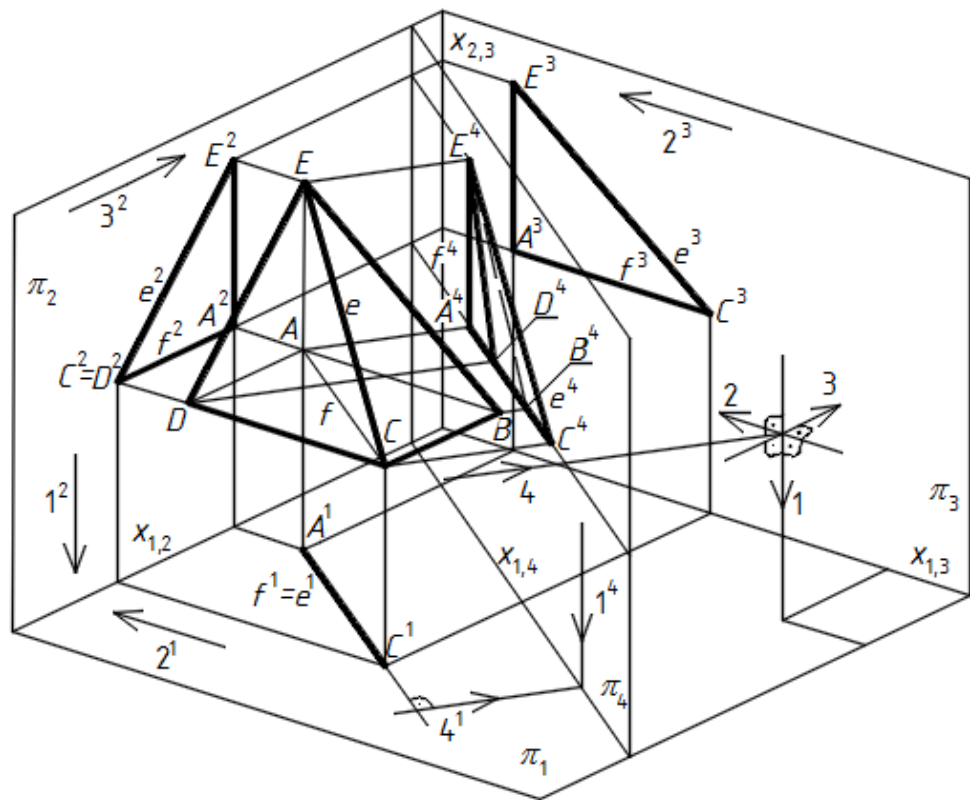


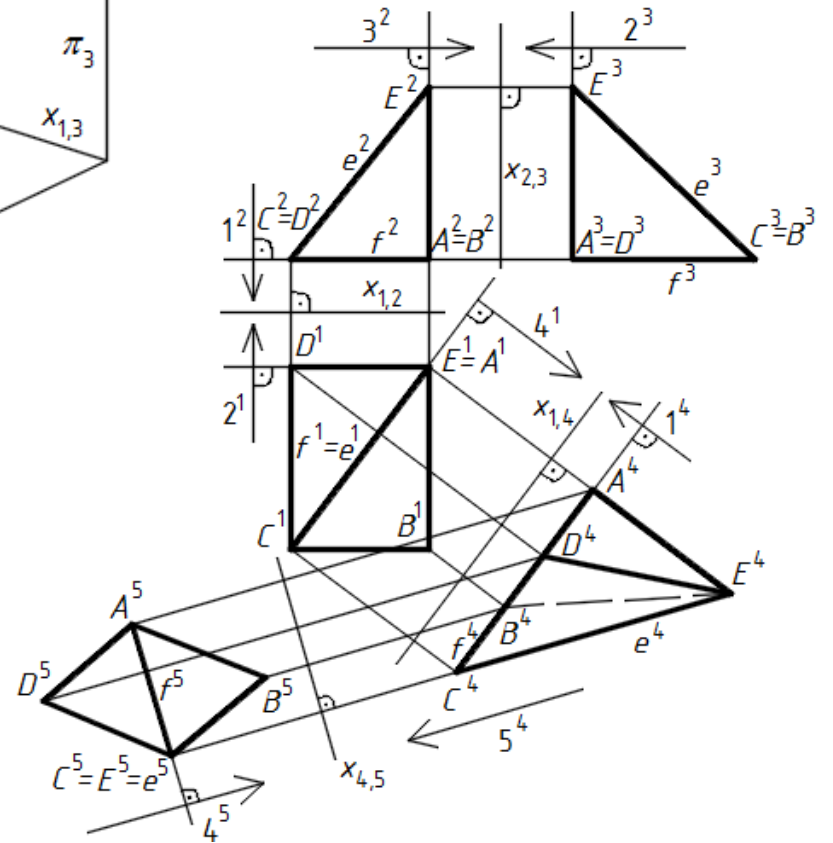
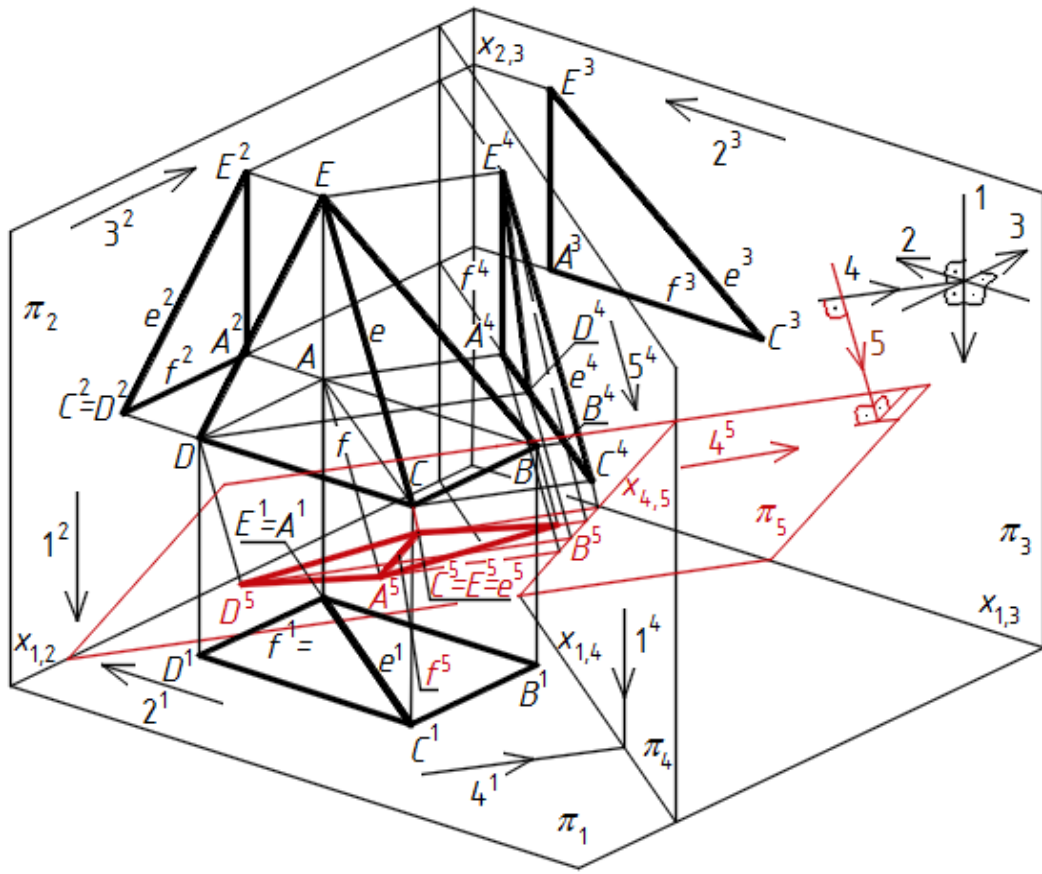


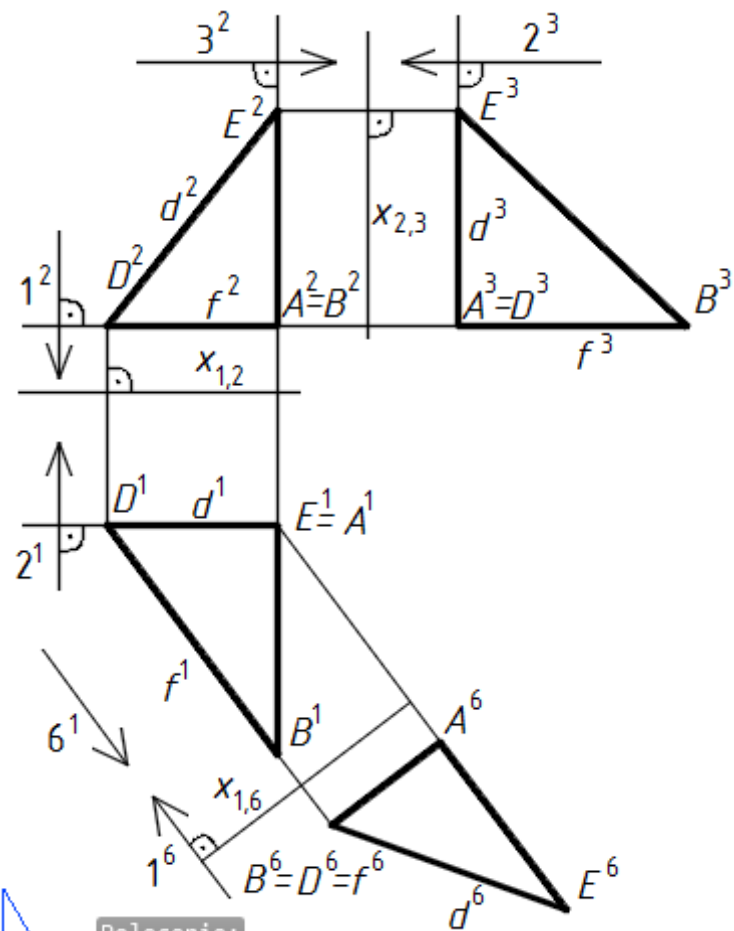
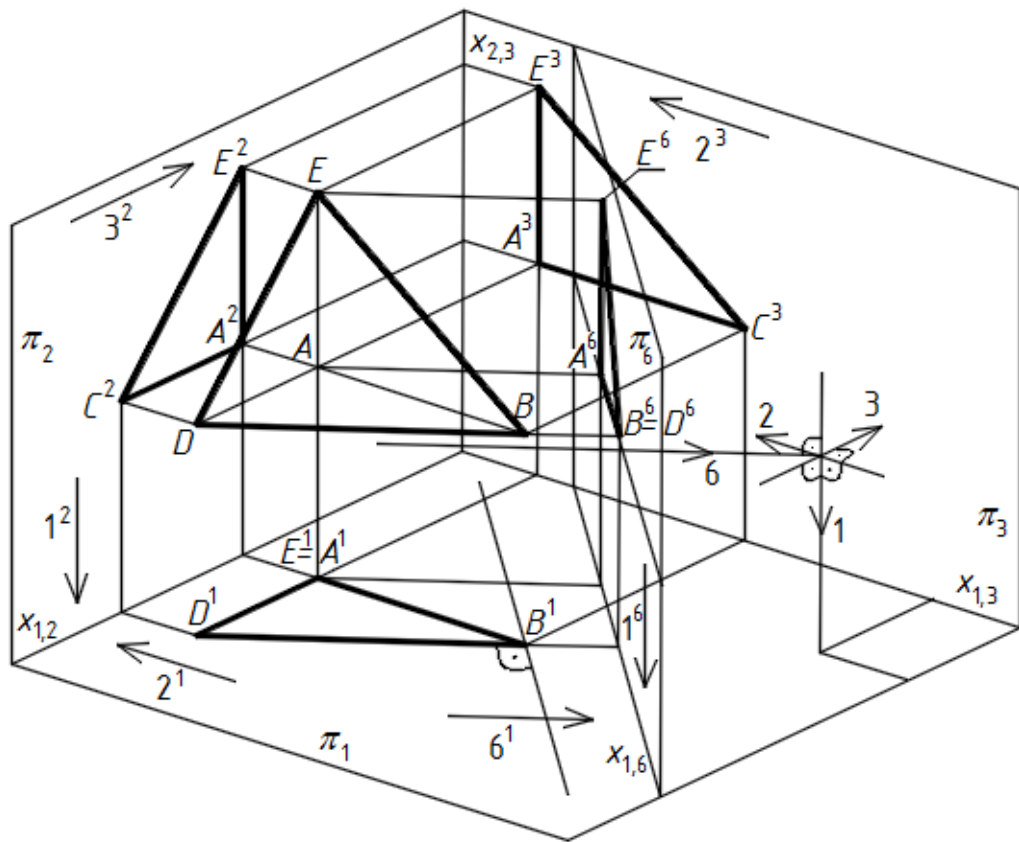




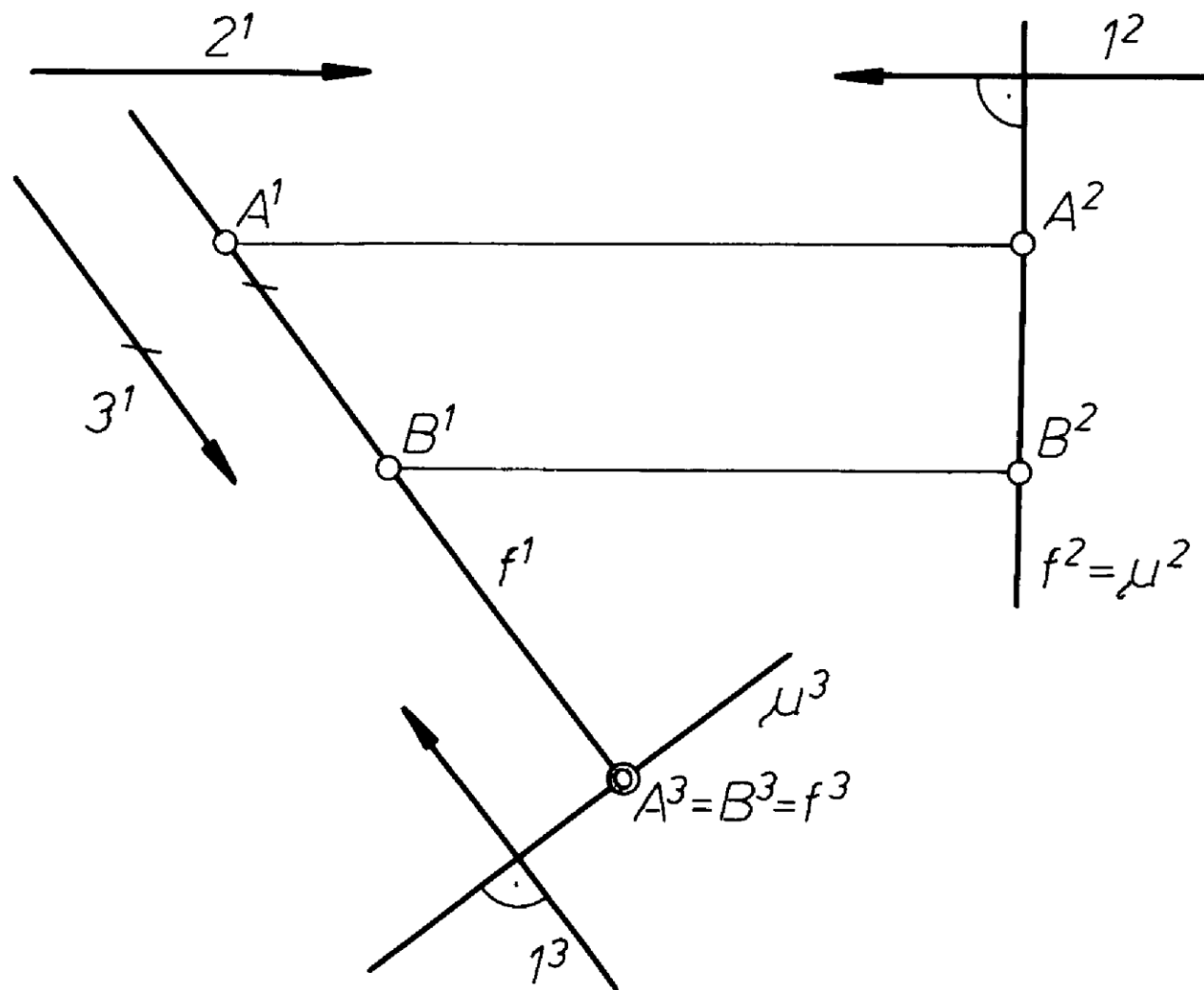




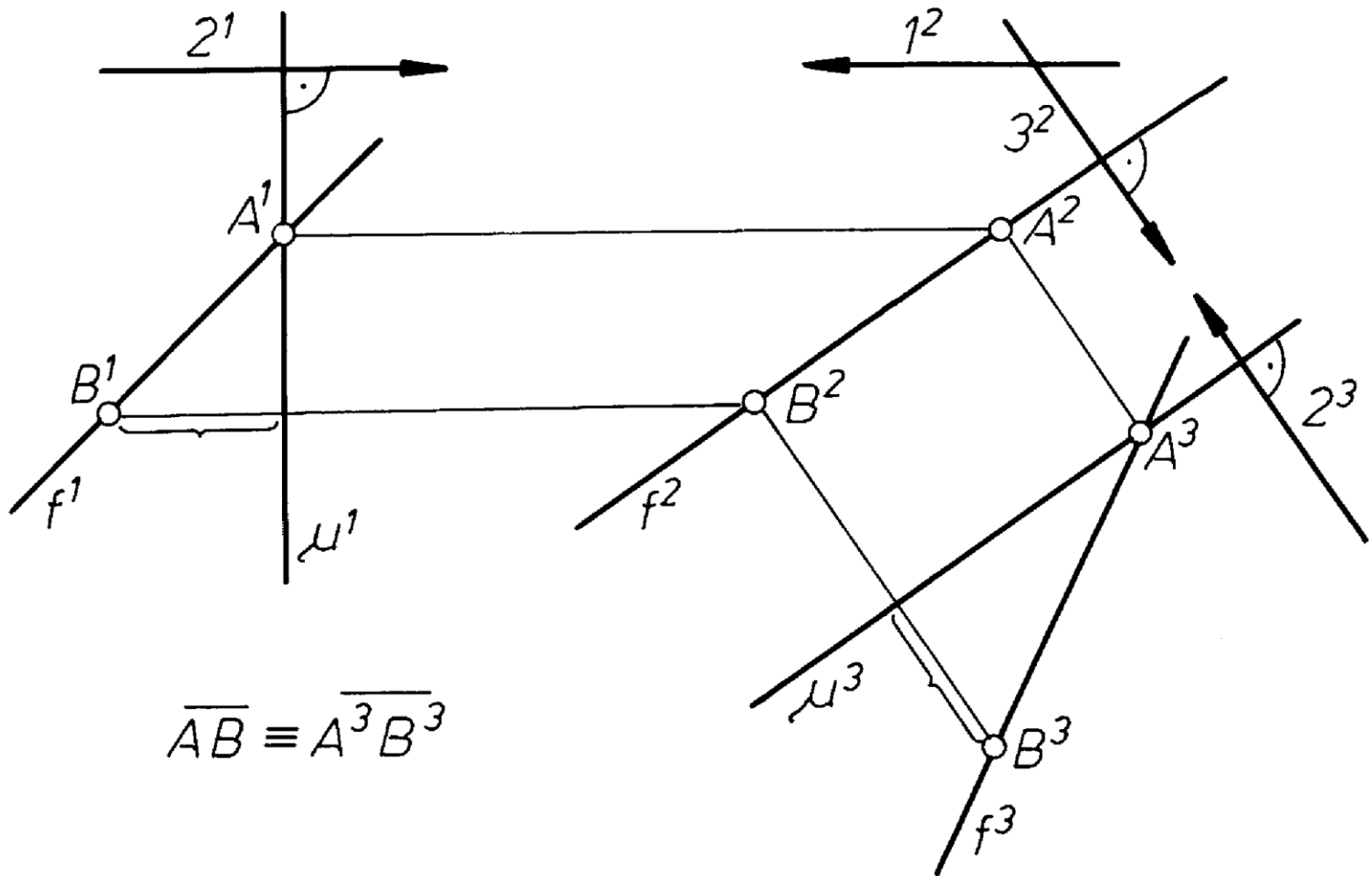


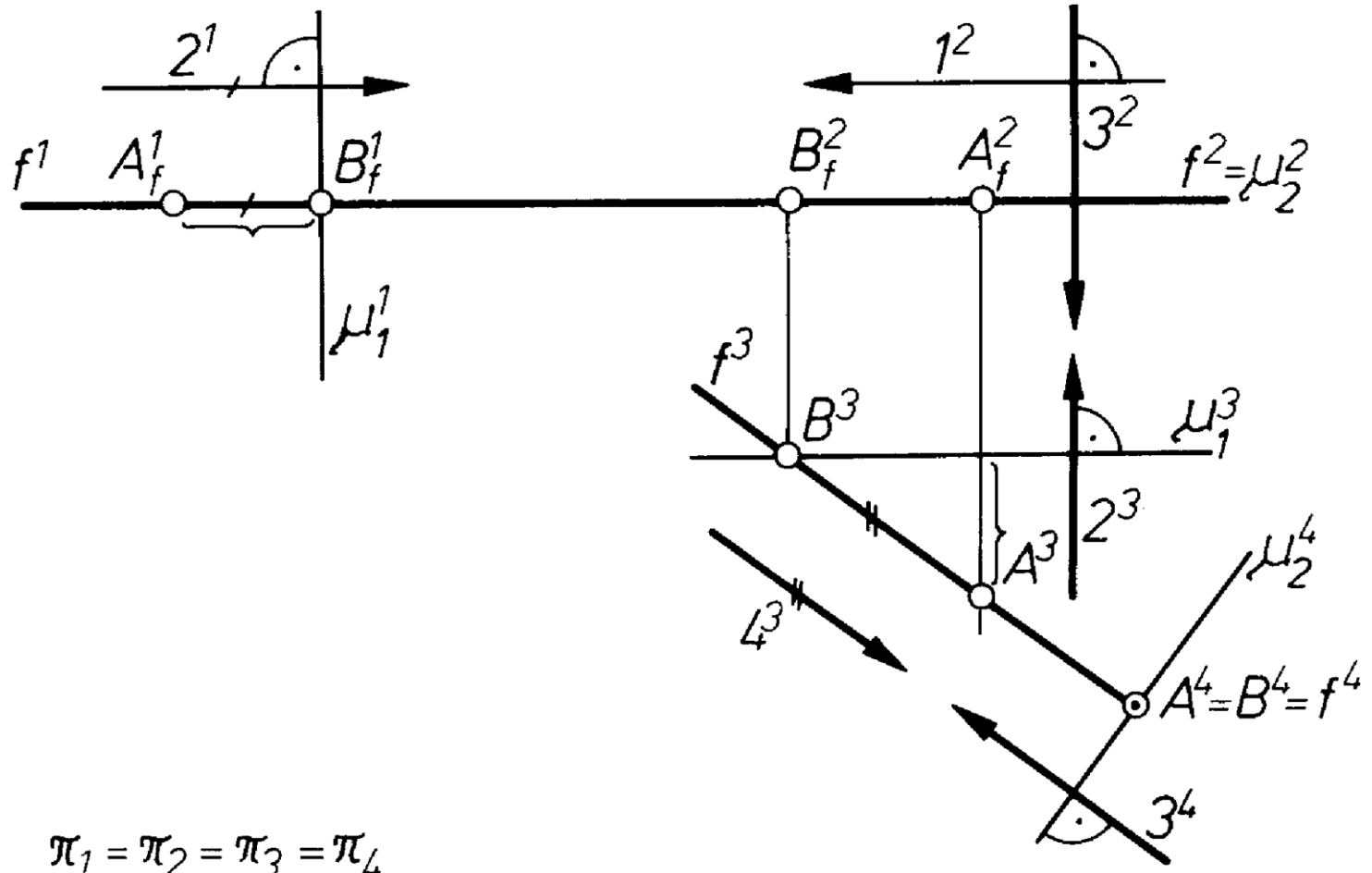


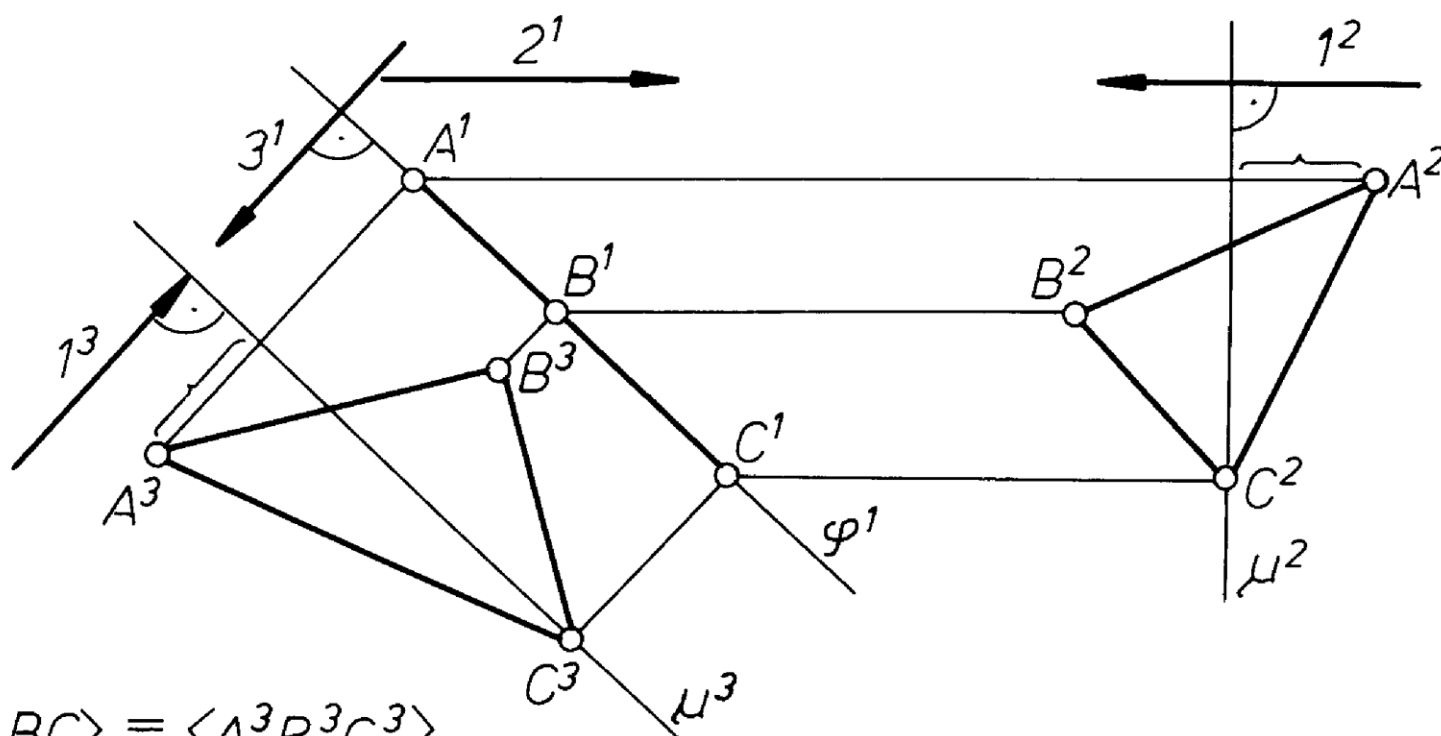
Polecenie:



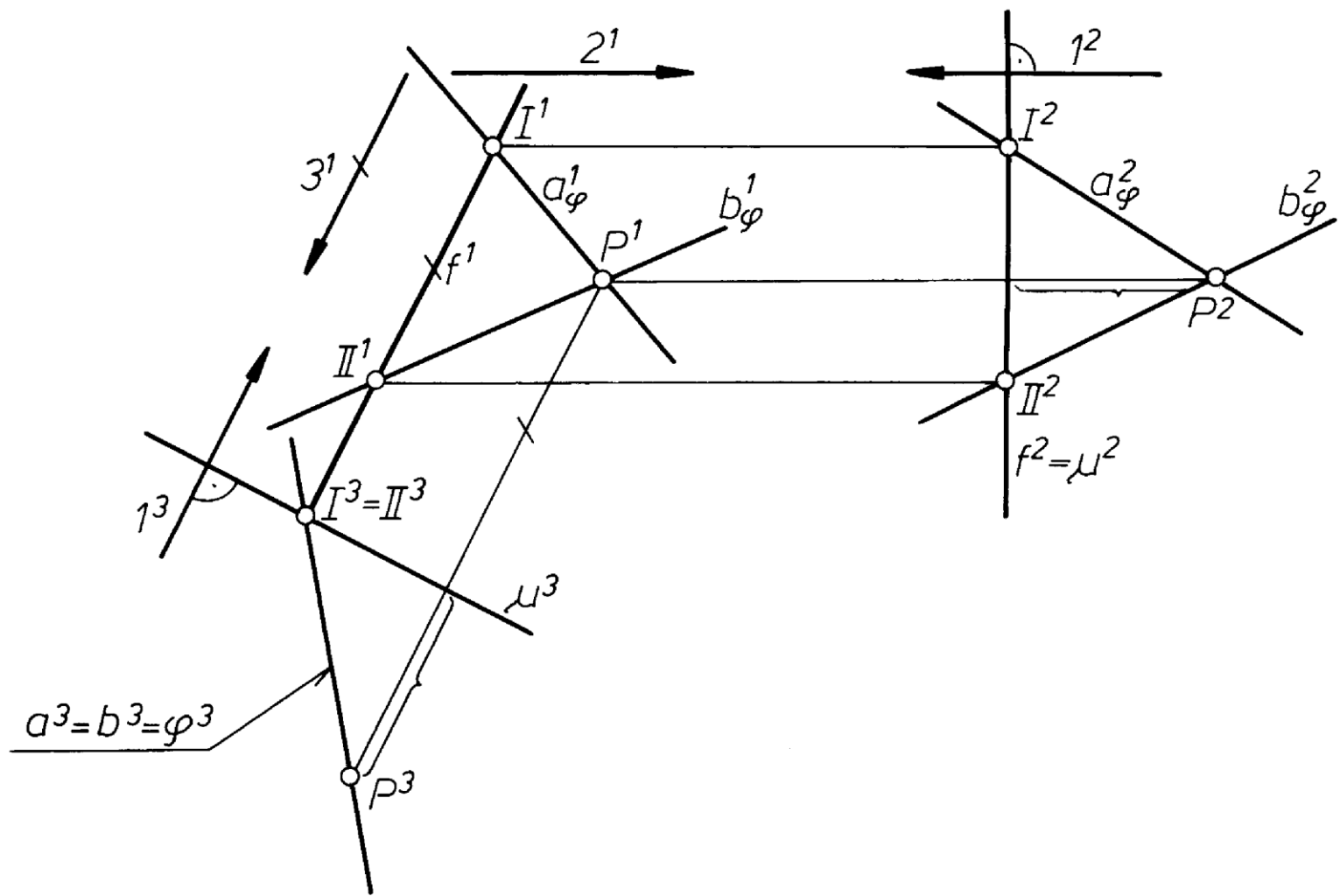


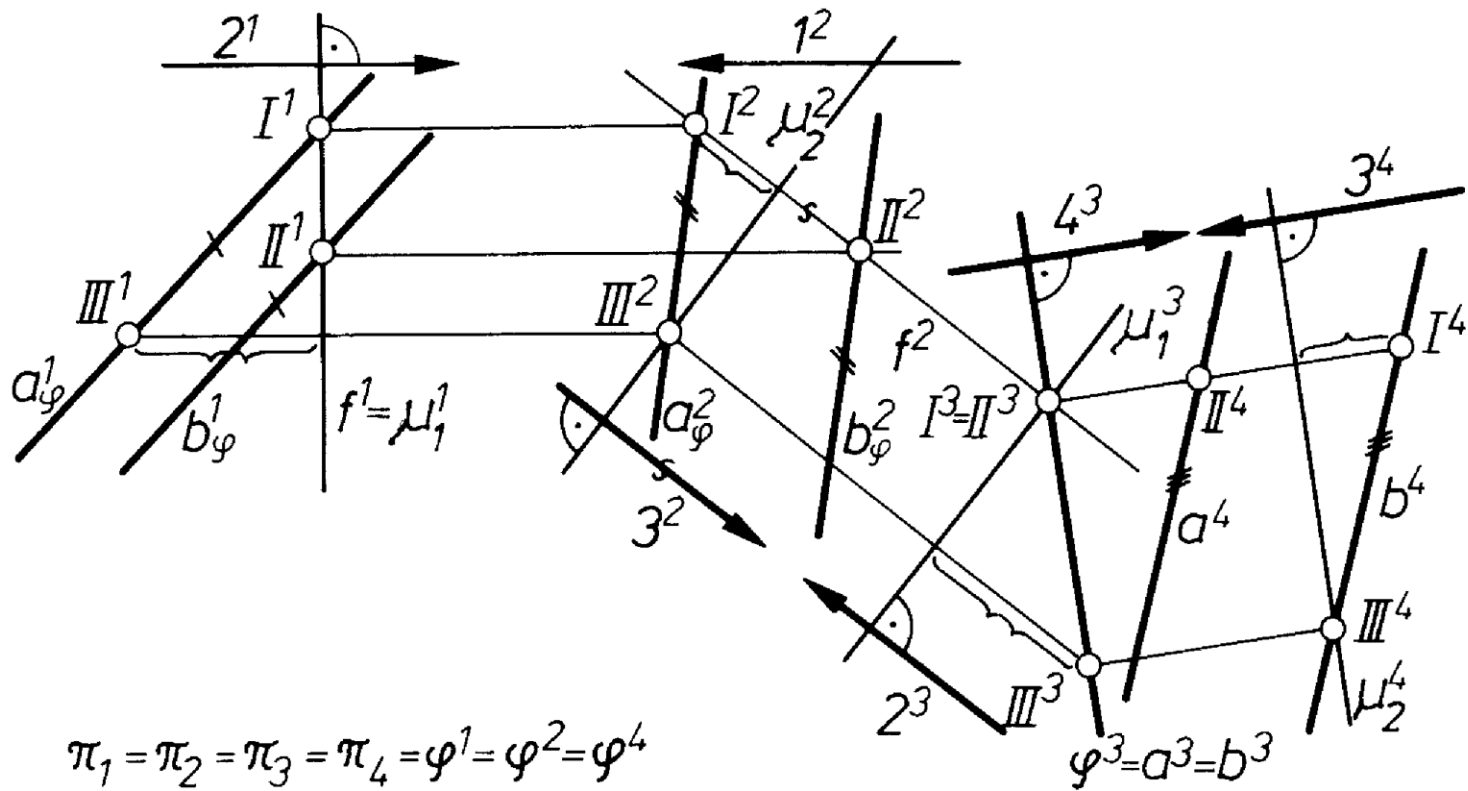






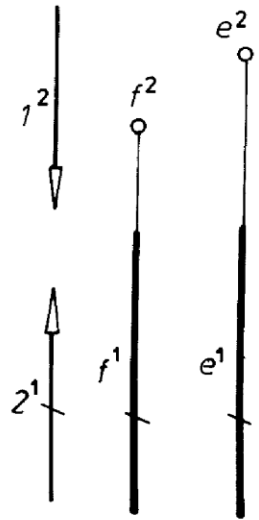
$$\langle ABC \rangle \equiv \langle A^3 B^3 C^3 \rangle$$



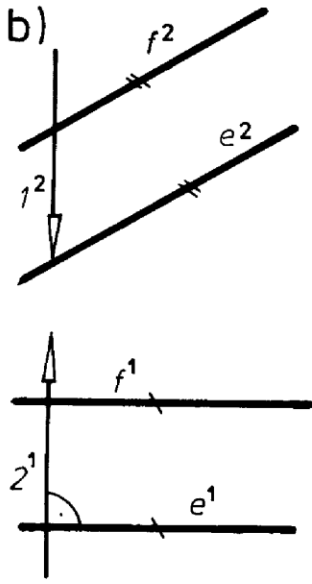


$e \parallel f$

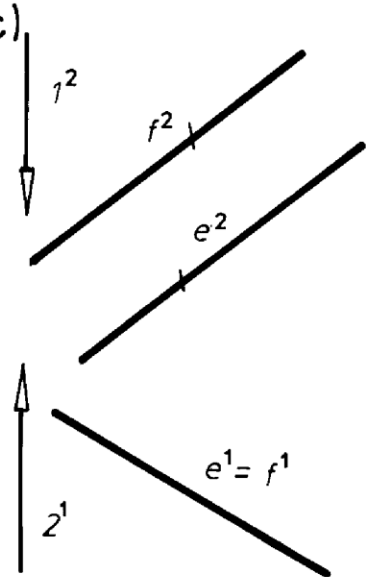
a)



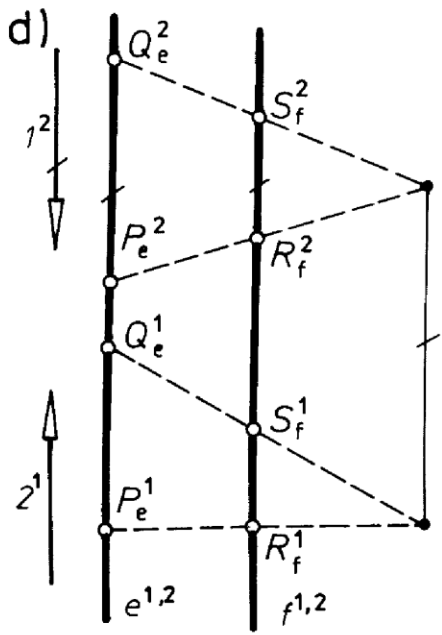
b)



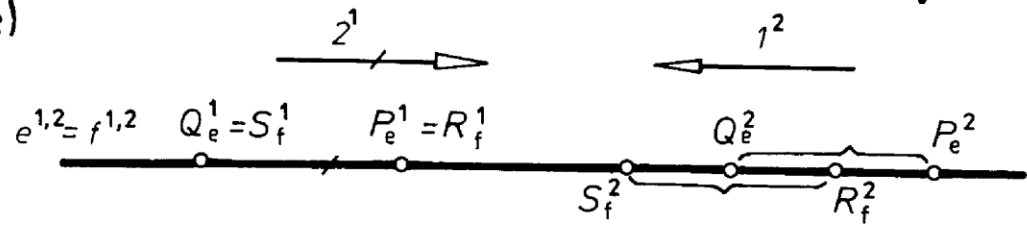
c)



d)

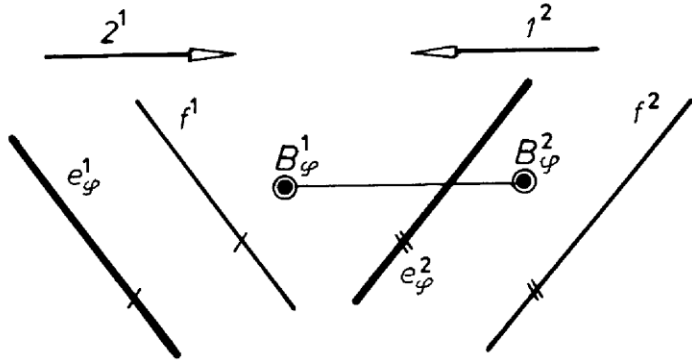


e)



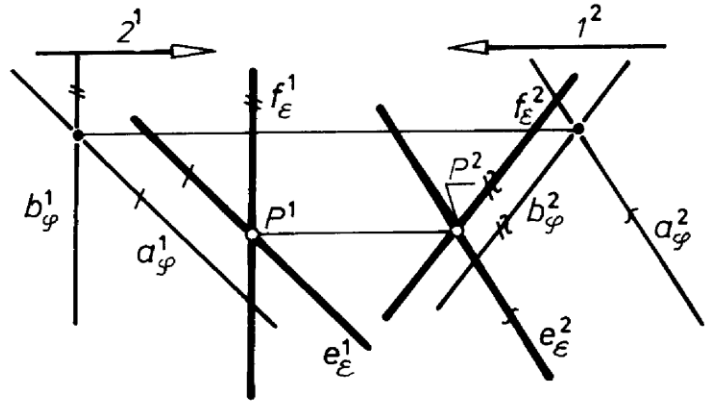
$$\varphi(B, e) \parallel f$$

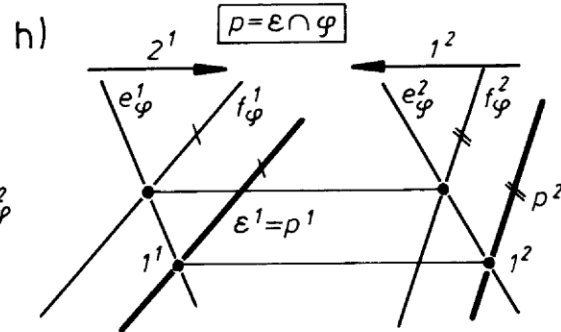
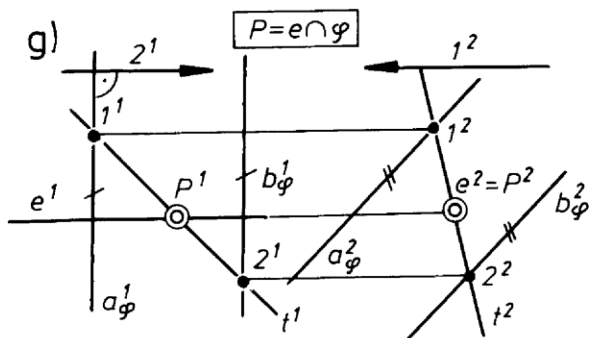
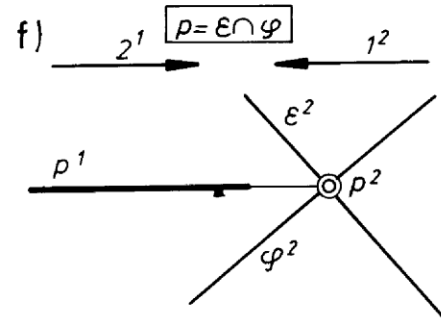
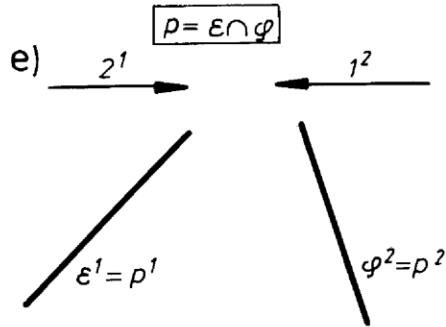
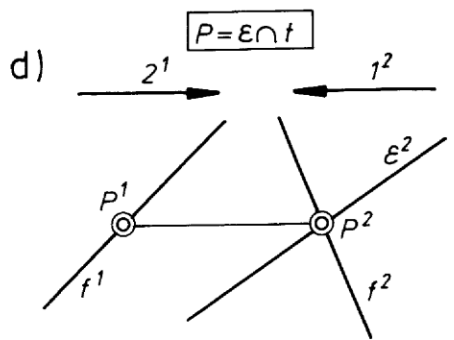
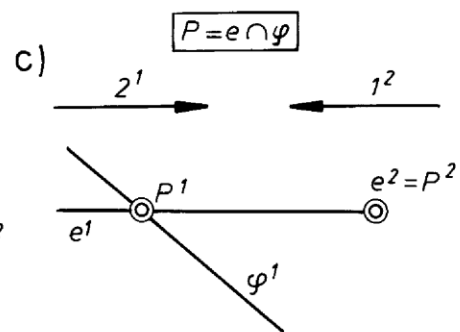
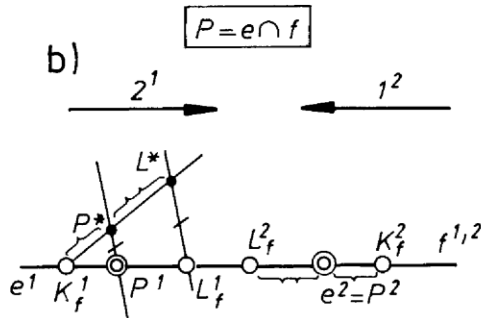
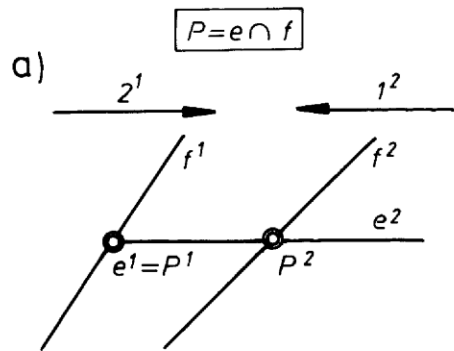
a)



$$\varepsilon(e, f) \parallel \varphi(a, b)$$

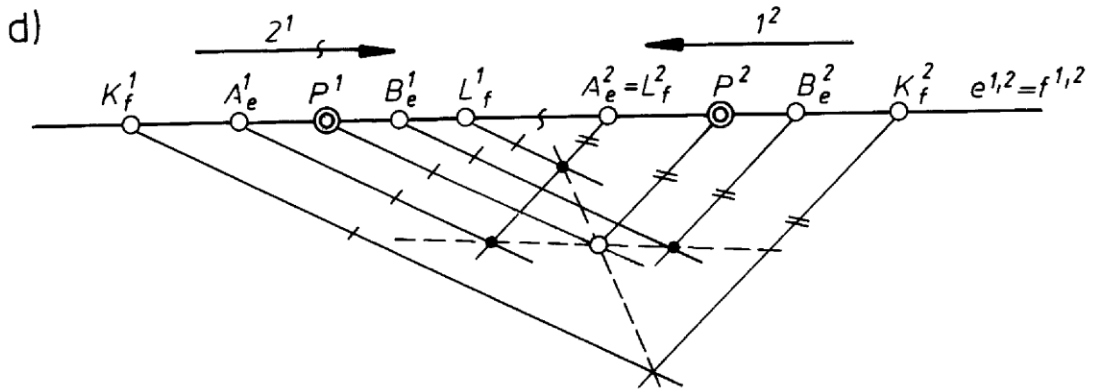
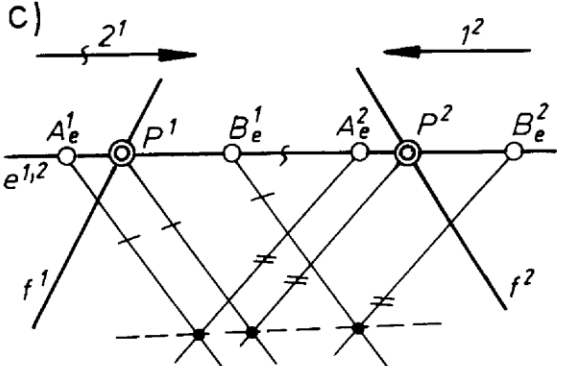
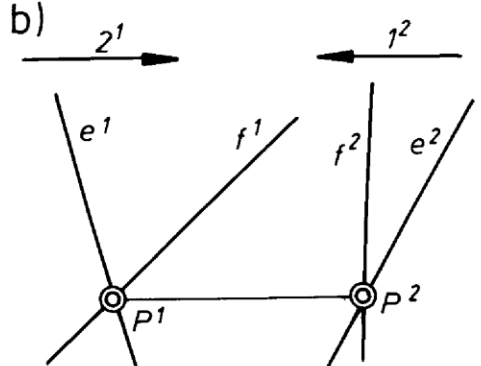
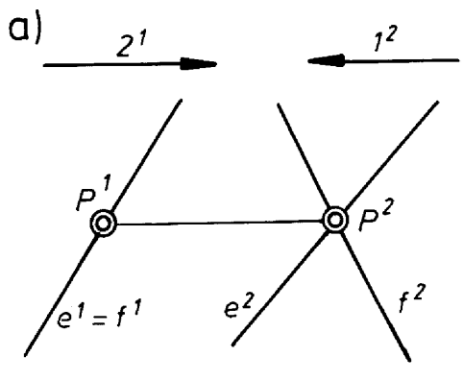
b)

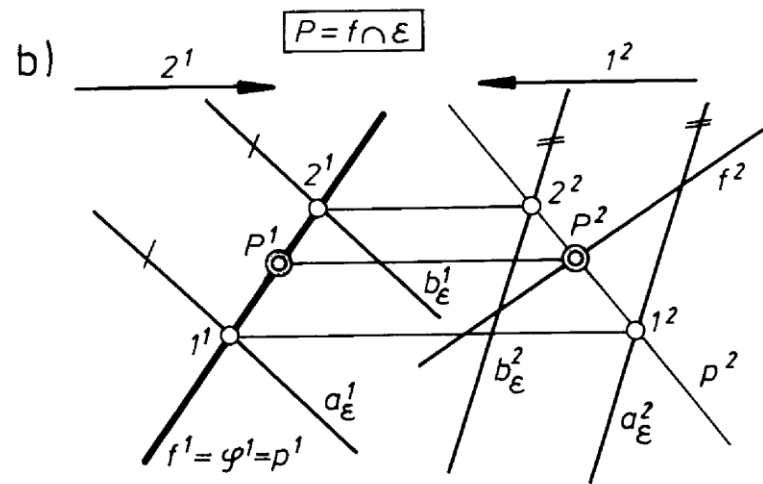
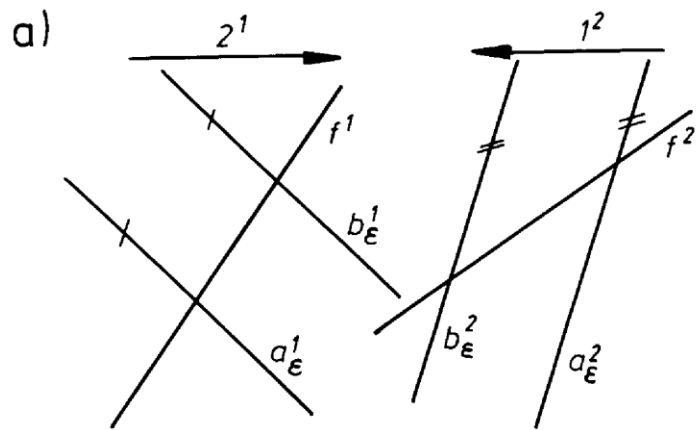


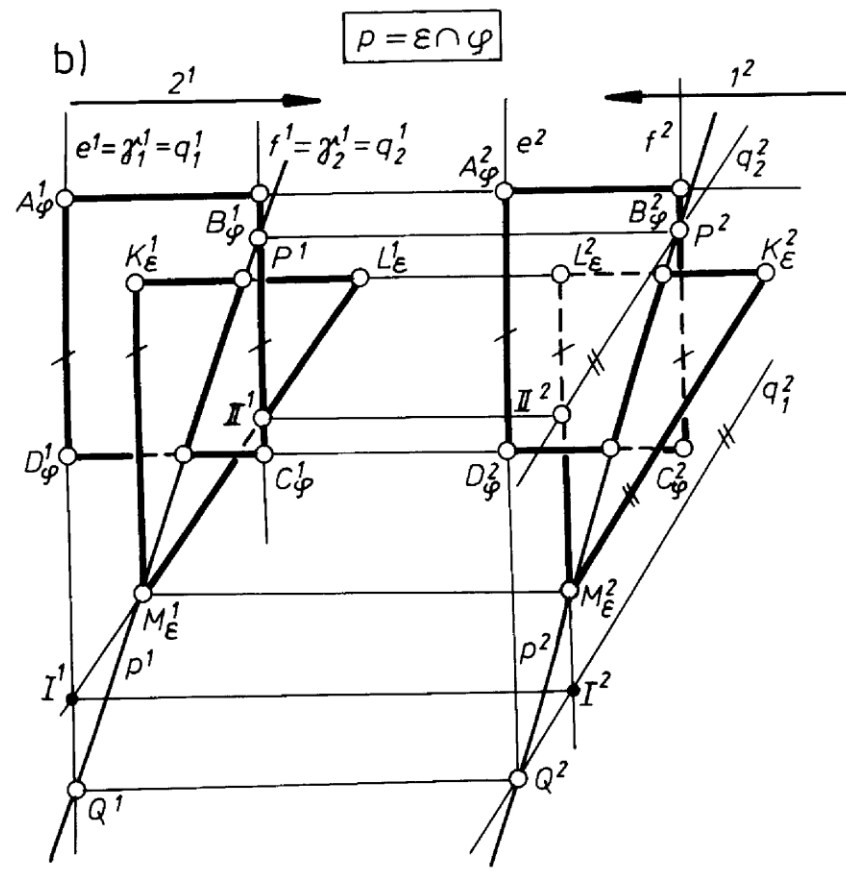
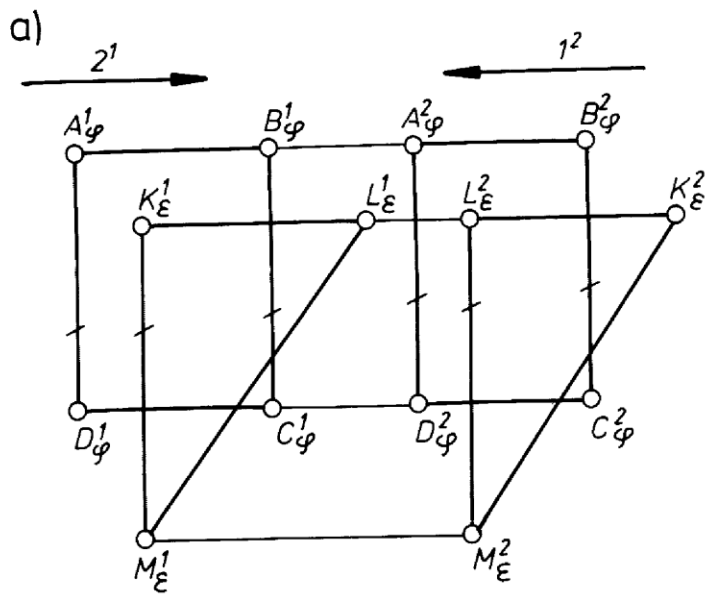


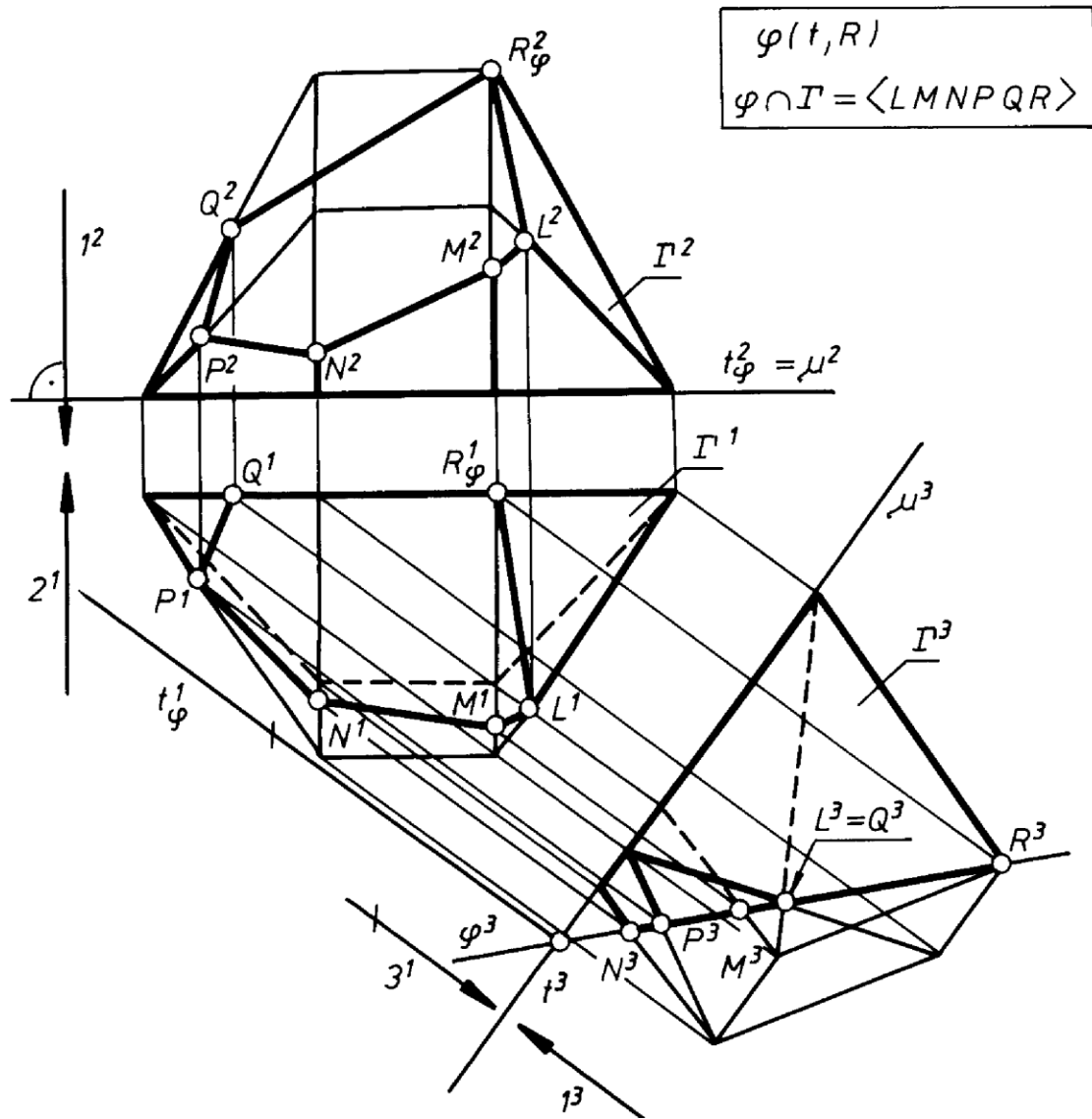


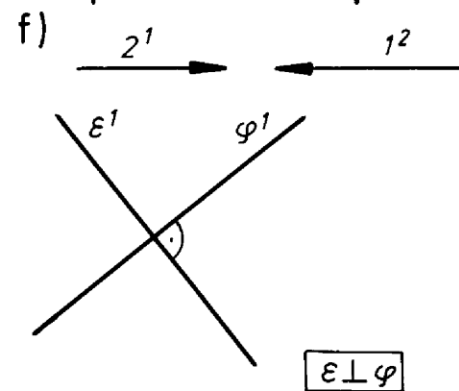
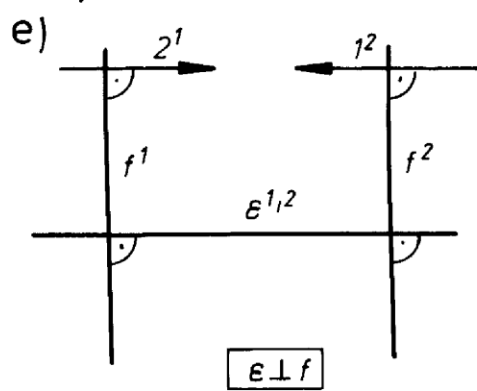
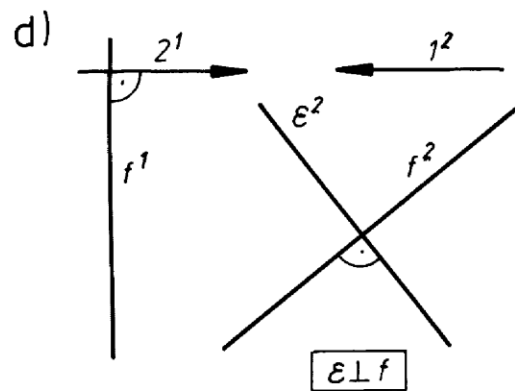
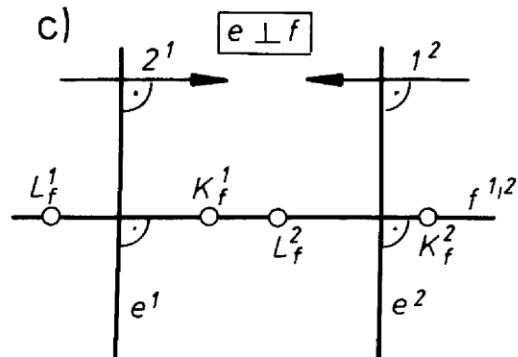
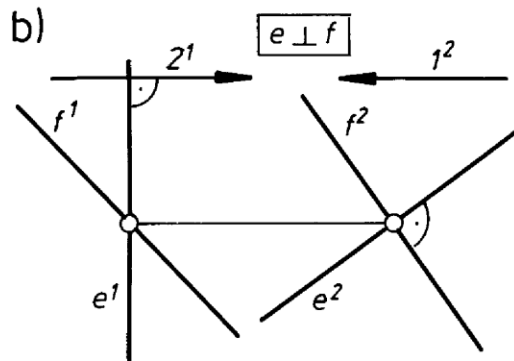
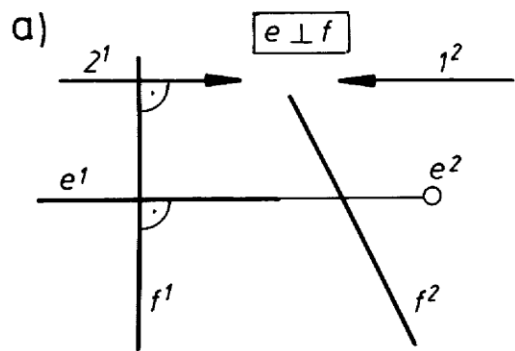
$$P = e \cap f$$

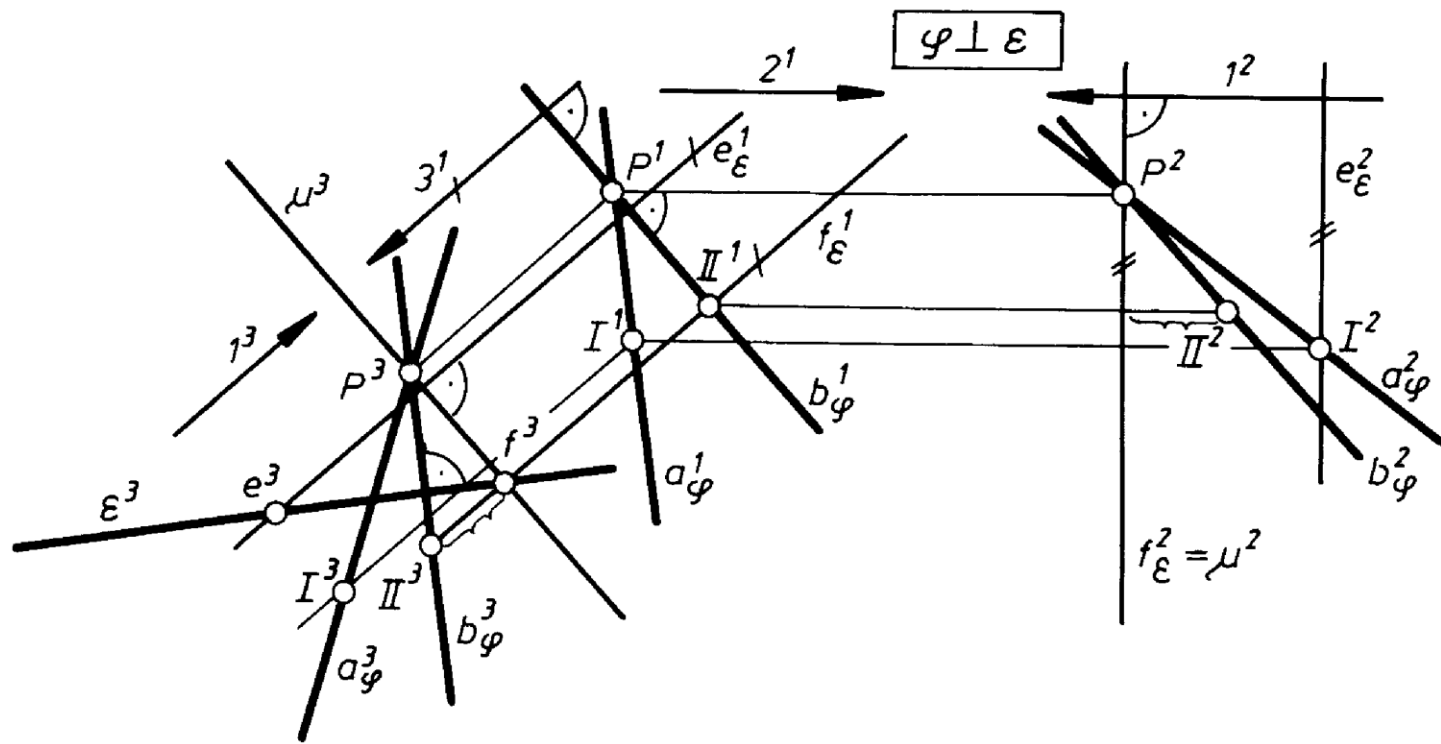


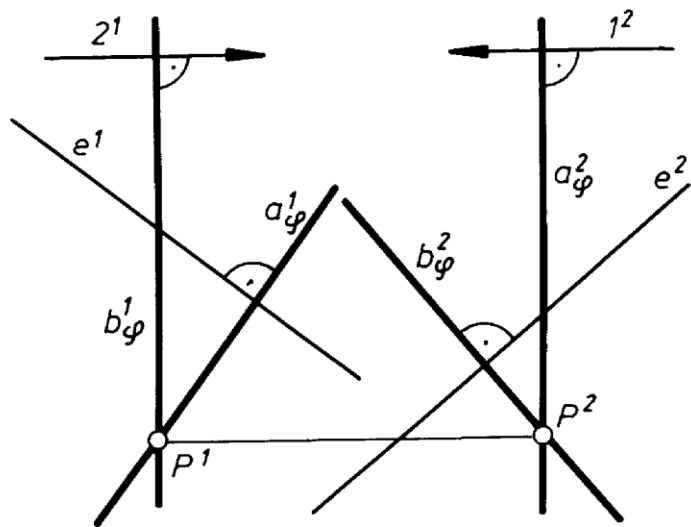




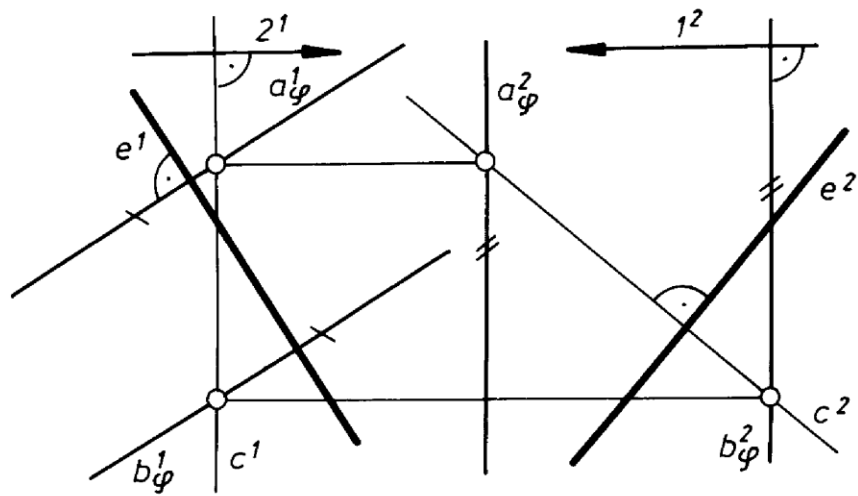




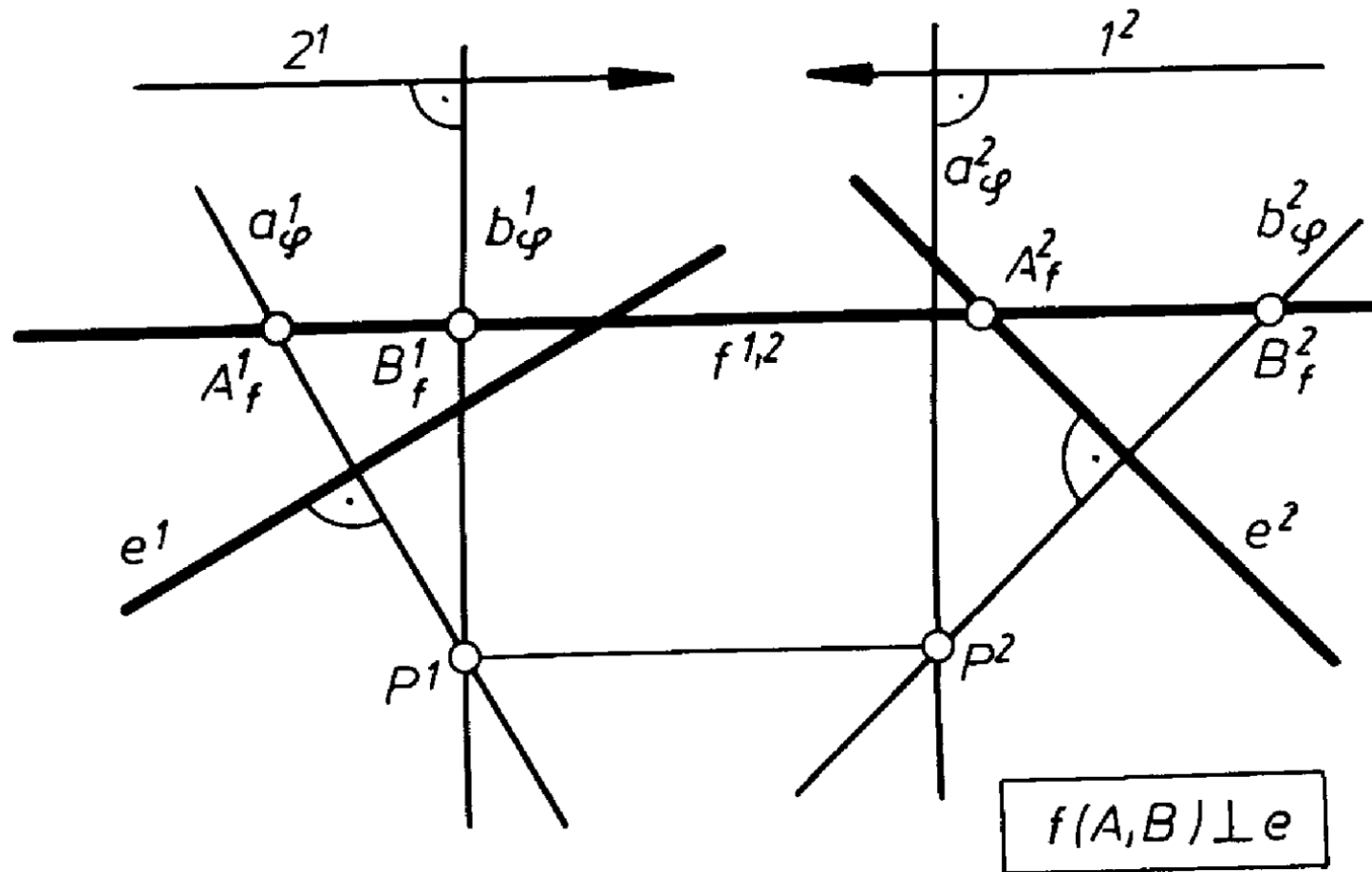




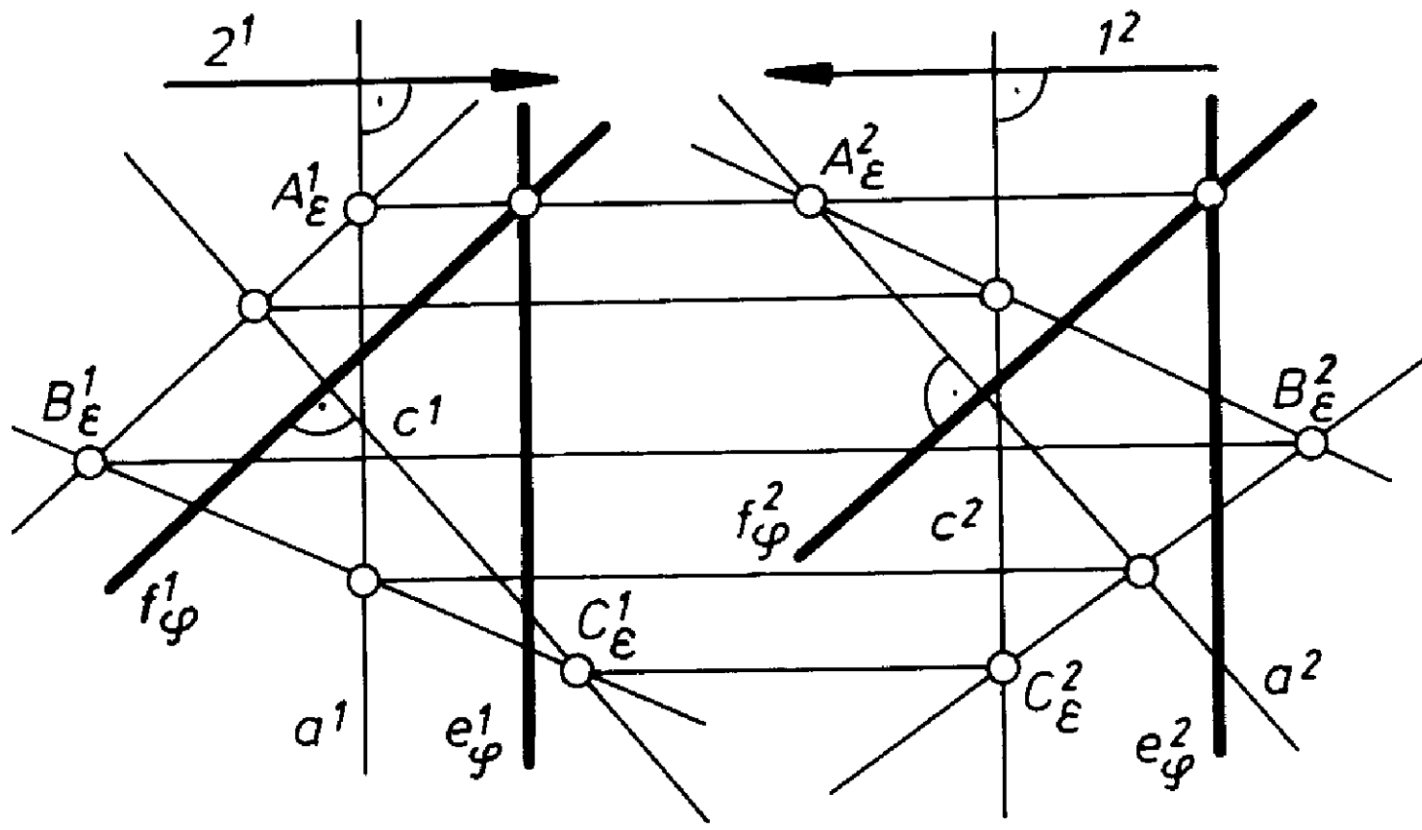
$\varphi(a, b) \perp e$



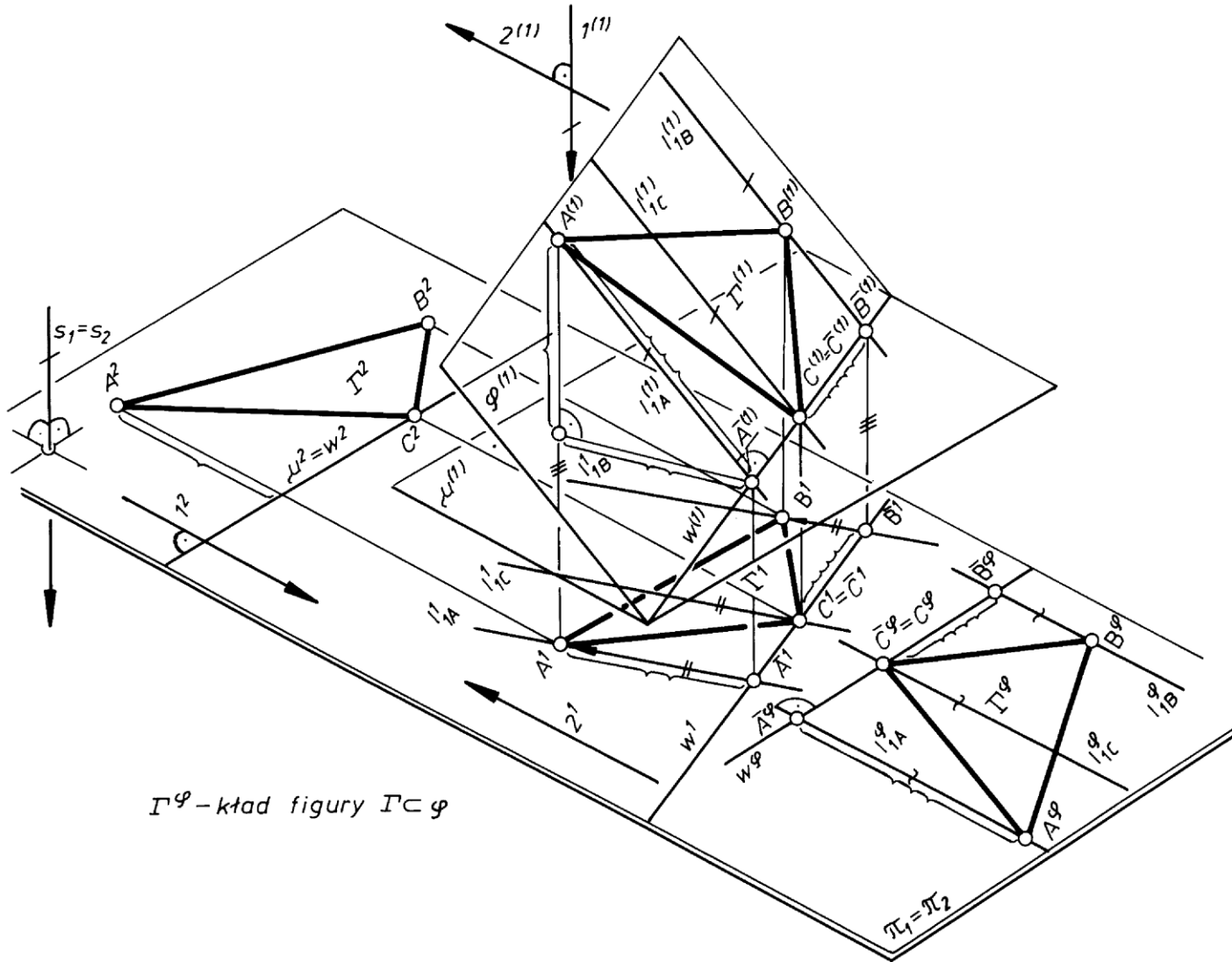
$e \perp \varphi(a, b)$







$$\varphi(e, f) \perp \varepsilon(A, B, C)$$



$\Gamma^\varphi$  - ktad figury  $\Gamma^C \varphi$

