



UNIVERSITÄTS-
BIBLIOTHEK
PADERBORN

Anschauliche Geometrie

Barth, Friedrich

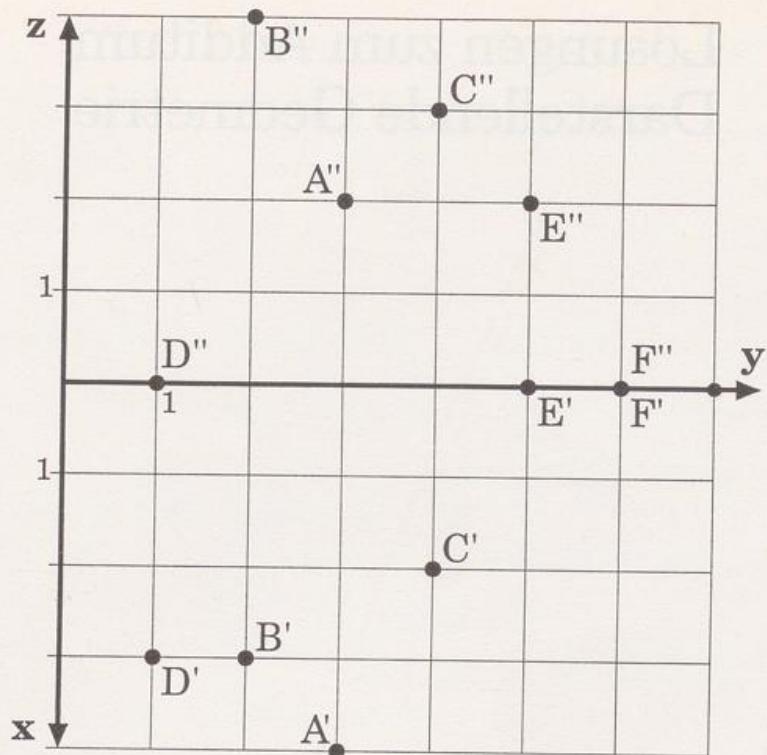
München, 1999

Lösungen zum Additum Darstellende Geometrie

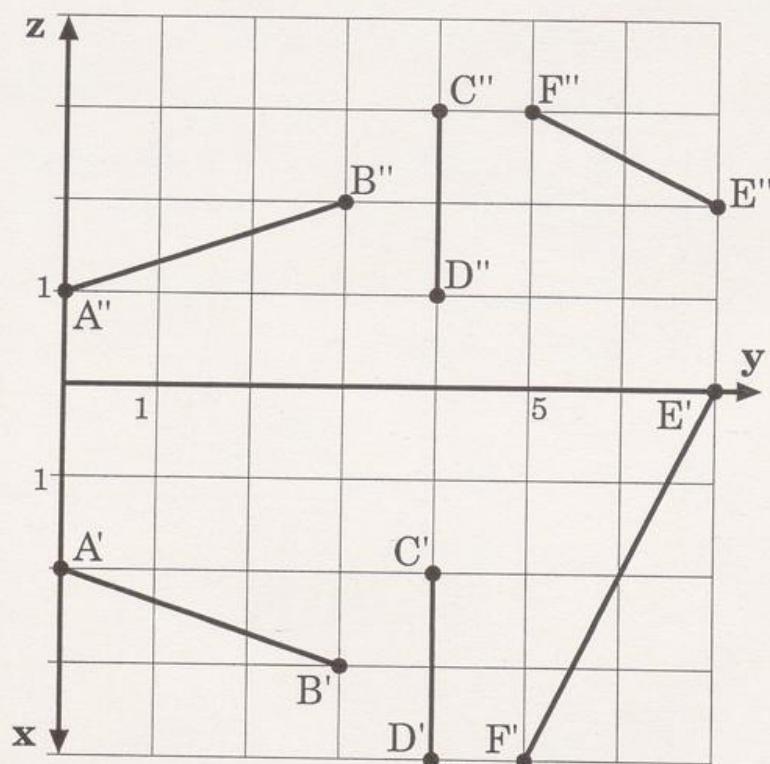
[urn:nbn:de:hbz:466:1-83422](#)

Lösungen zum Additum Darstellende Geometrie

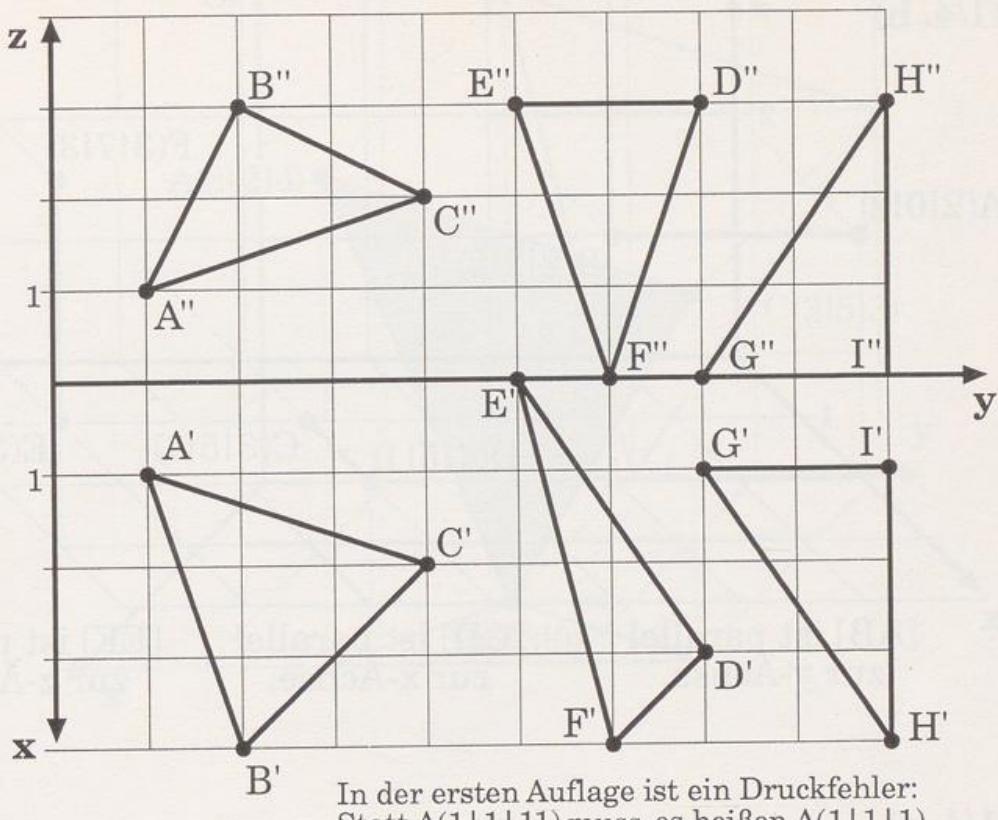
10/1.



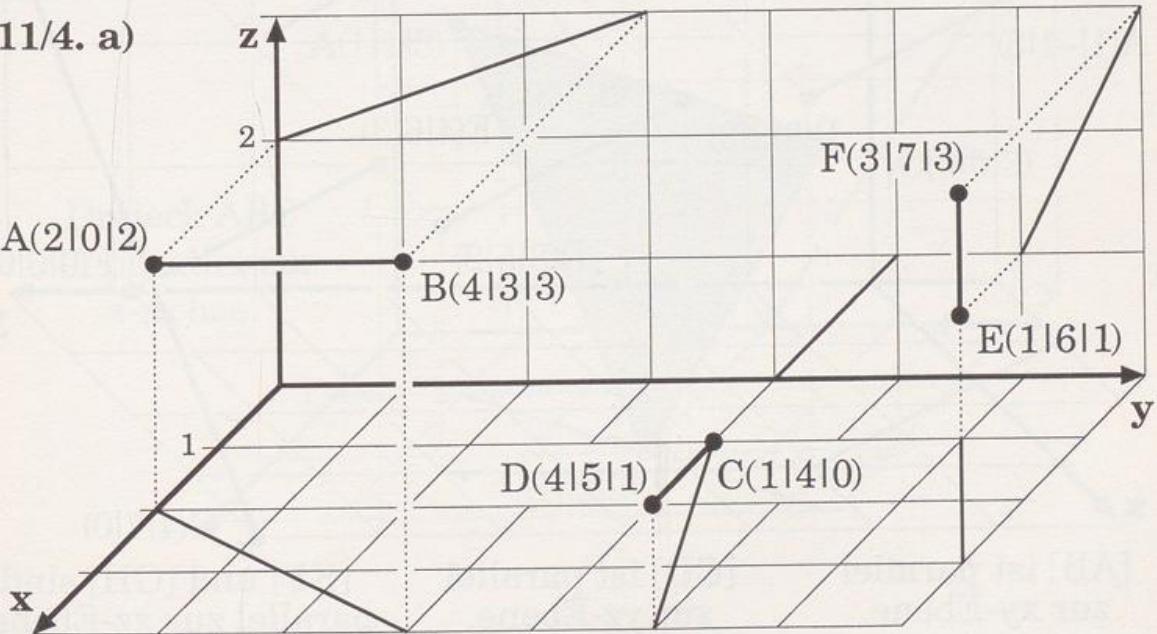
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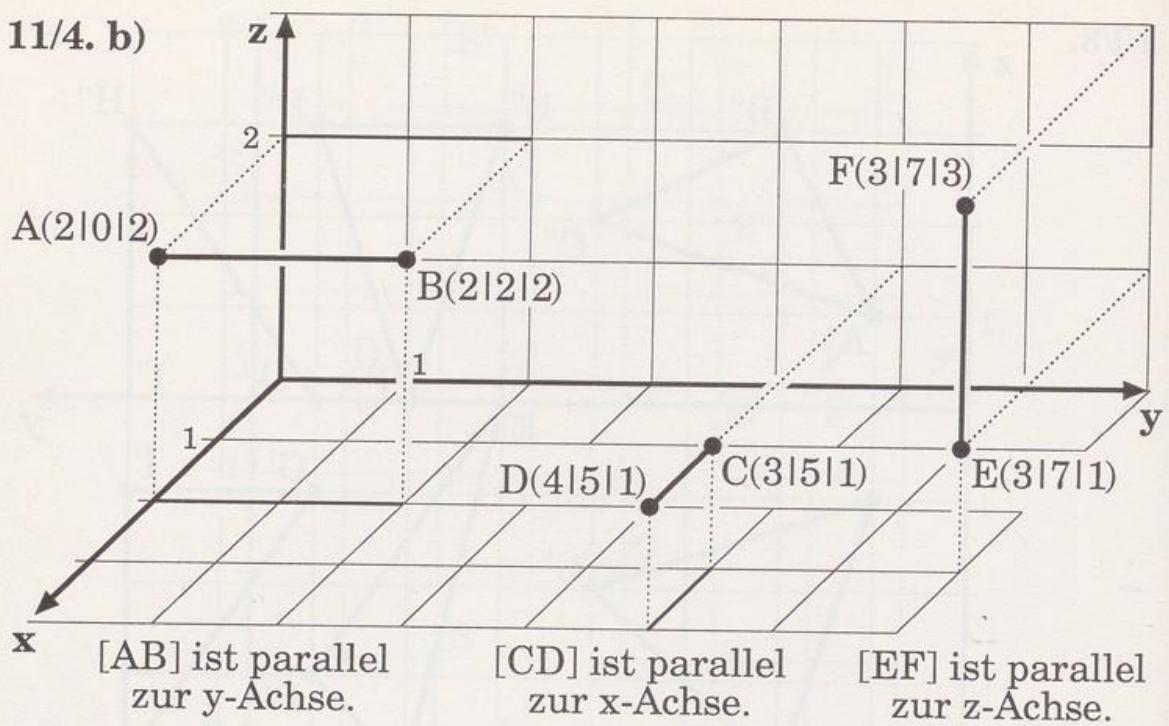
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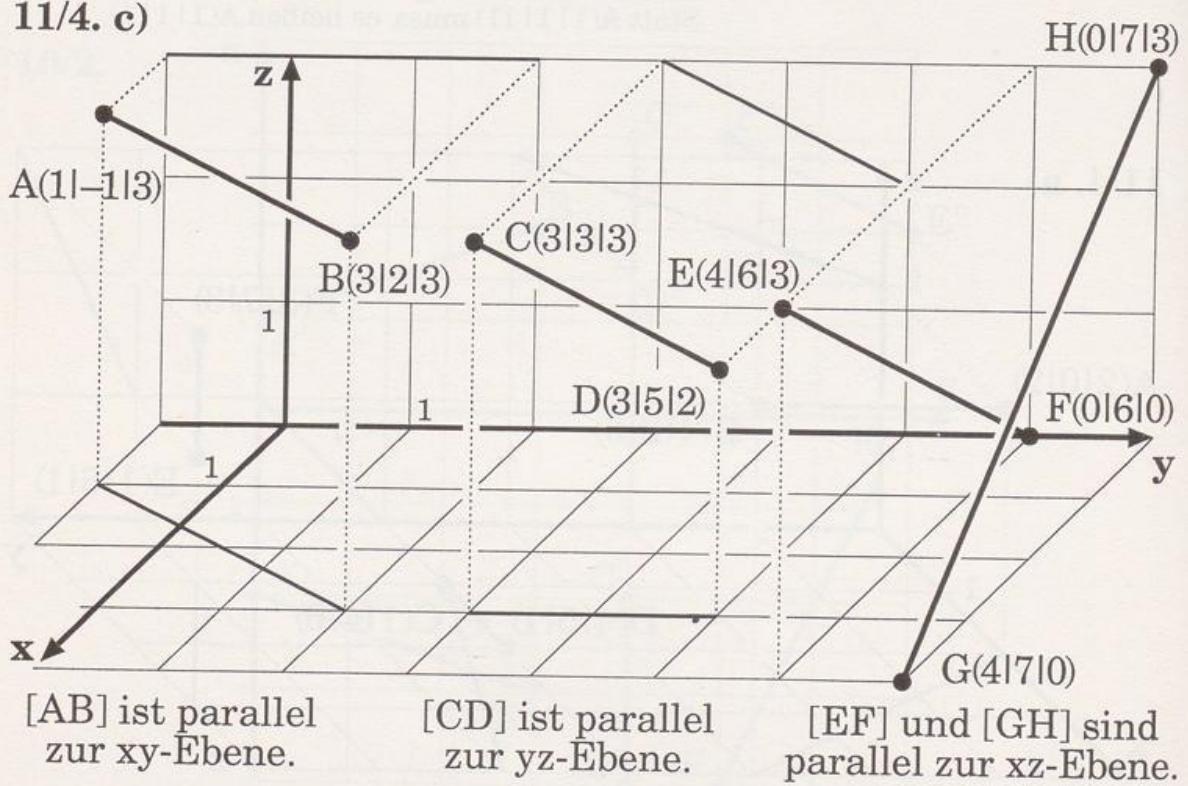
11/4. a)



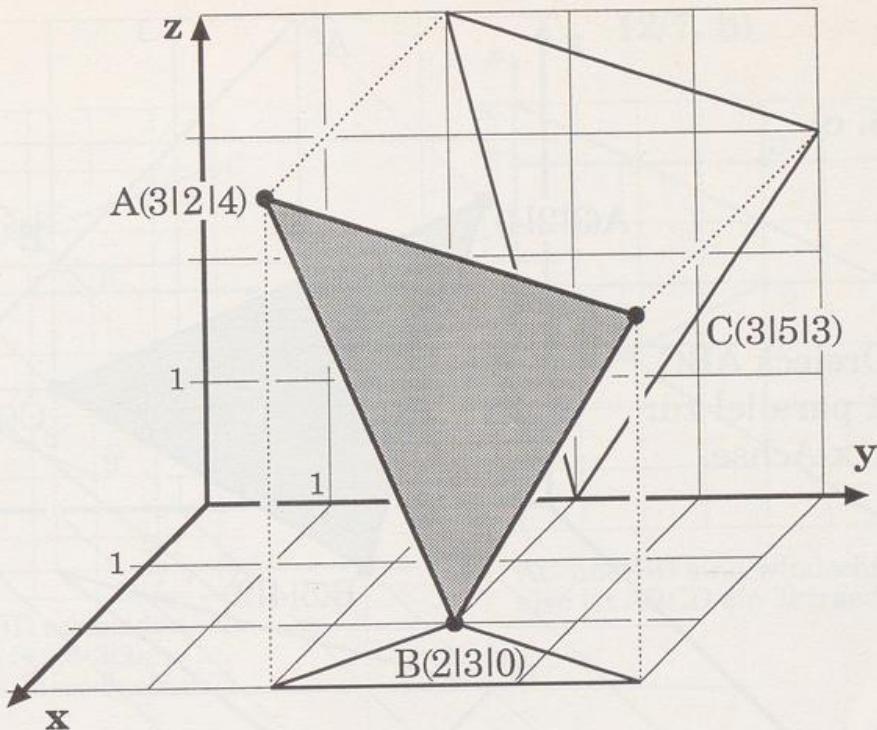
11/4. b)



11/4. c)

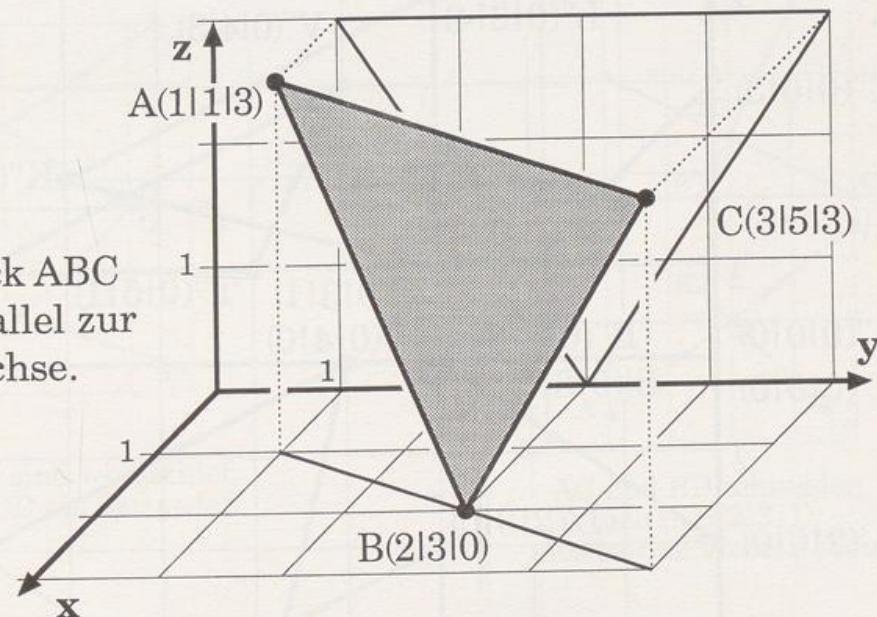


11/5. a)



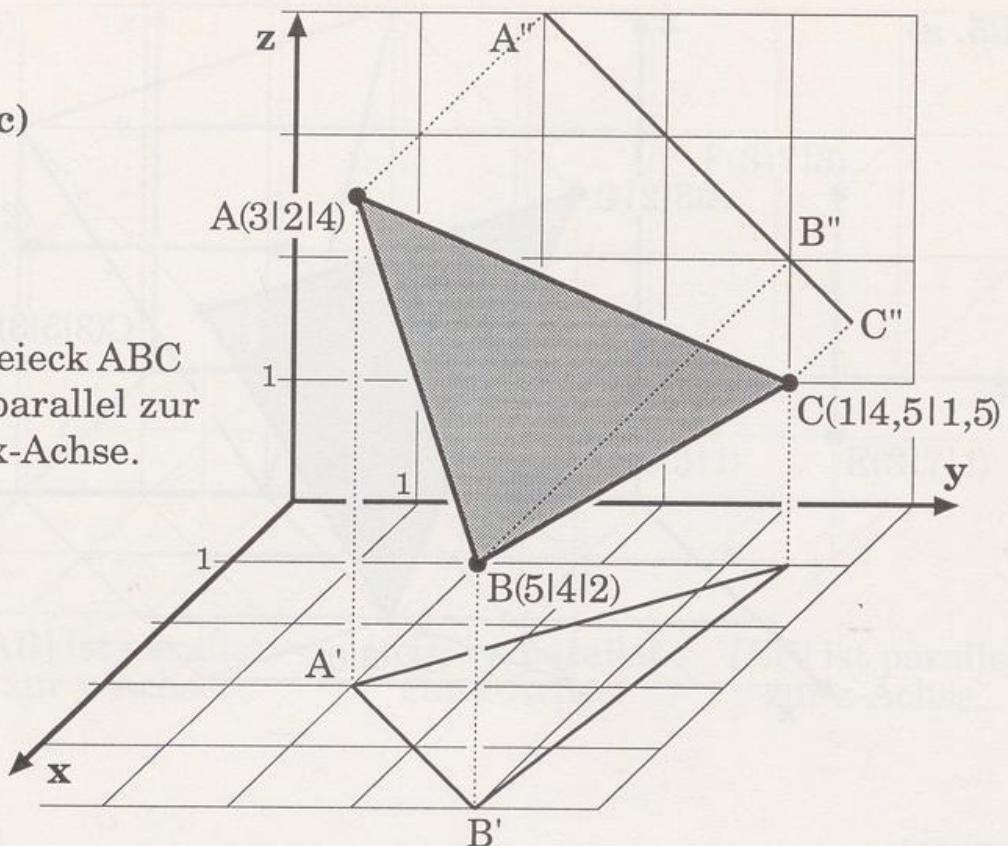
12/5. b)

Dreieck ABC
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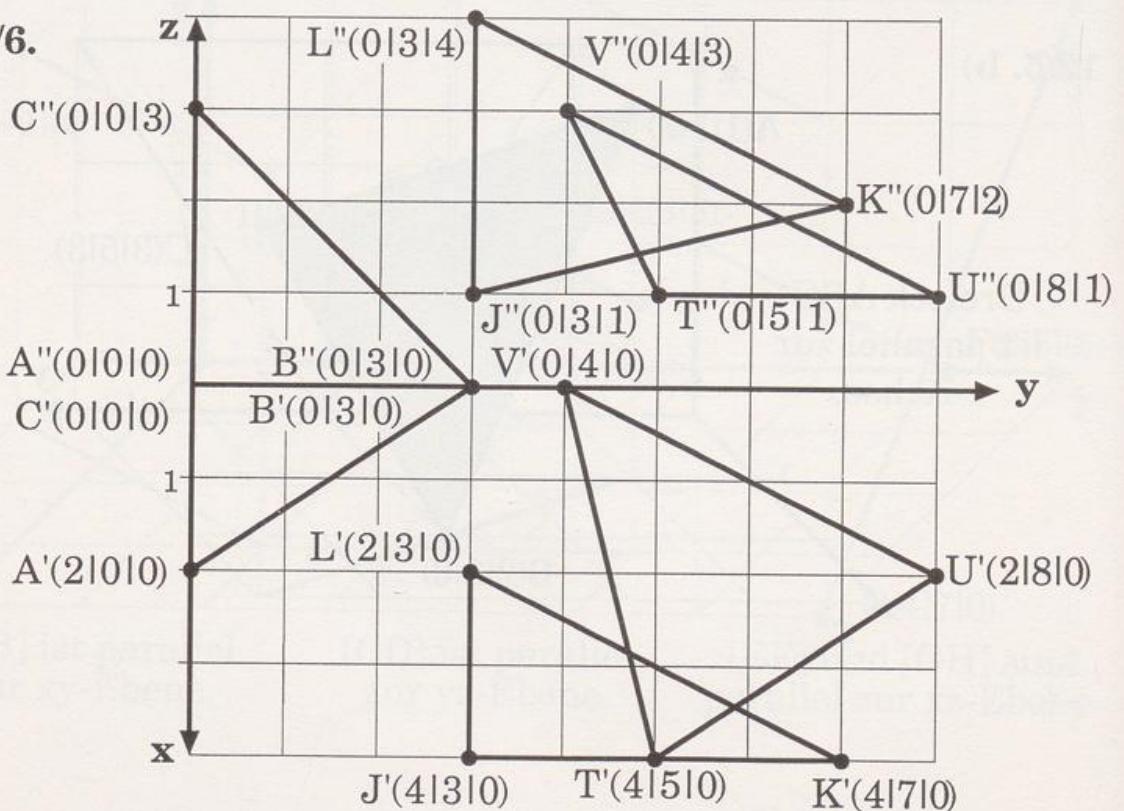


12/5. c)

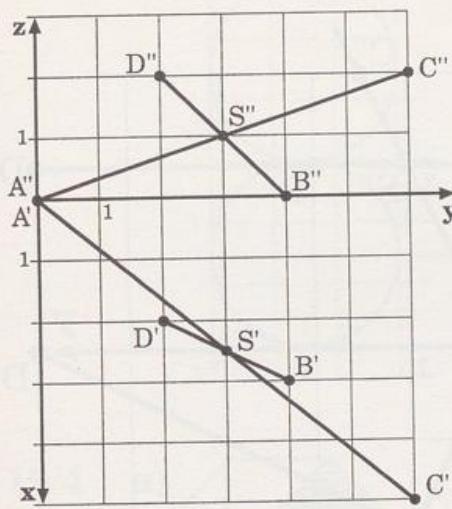
Dreieck ABC
ist parallel zur
x-Achse.



12/6.

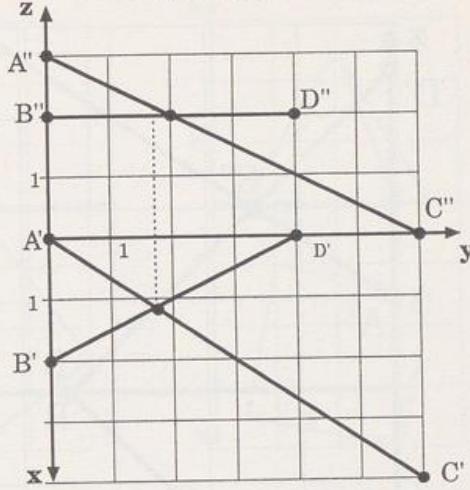


12/7. a)



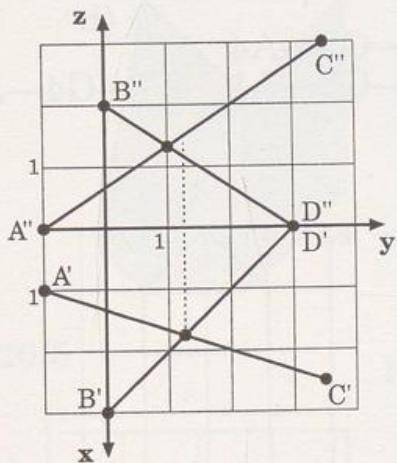
AC und BD schneiden
sich in $S(2|1|1)$,
also ist das Viereck eben.

12/7. b)



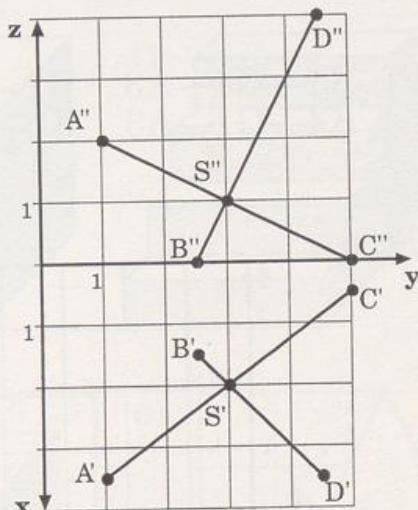
AC und BD sind windschief,
also ist ABCD ein Tetraeder.

12/7. c)



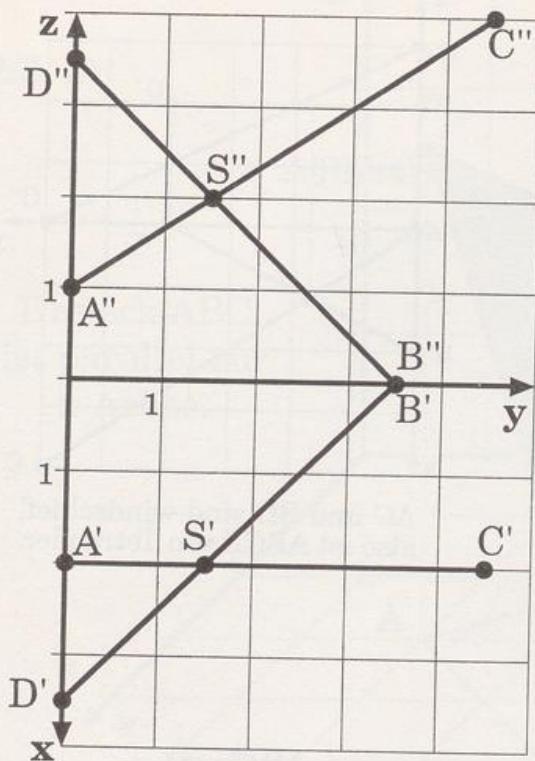
AB und CD sind windschief,
also ist ABCD ein Tetraeder.

12/7. d)

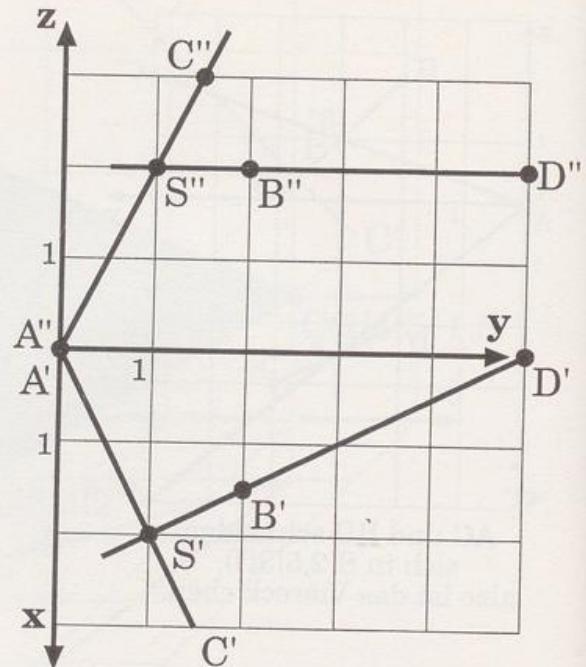


AC und BD schneiden
sich in $S(2|1|1)$,
also ist das Viereck eben.

12/8. a) D(3,5|0|3,5)

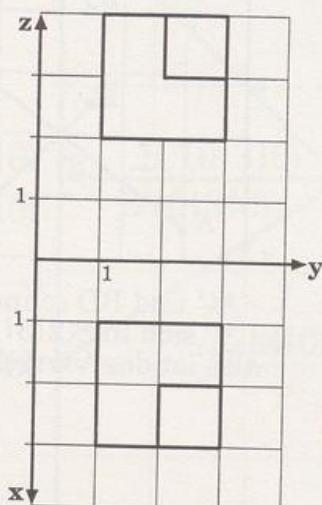


12/8. b) D(0|5|2)

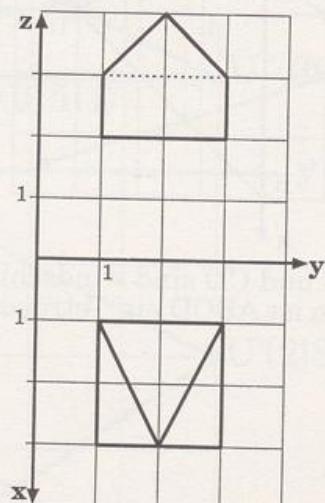


18/1 K₁—G₄—A₃ K₂—G₃—A₂ K₃—G₃—A₄
K₄—G₁—A₃ K₅—G₅—A₁ K₆—G₂—A₁ K₇—G₄—A₃

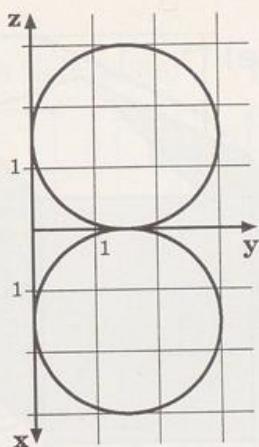
18/2. a)



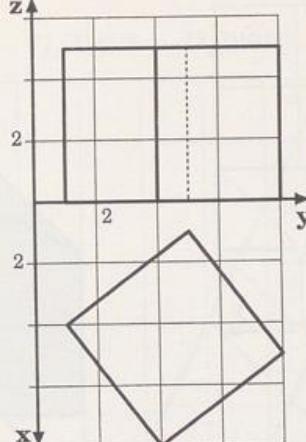
18/2. b)



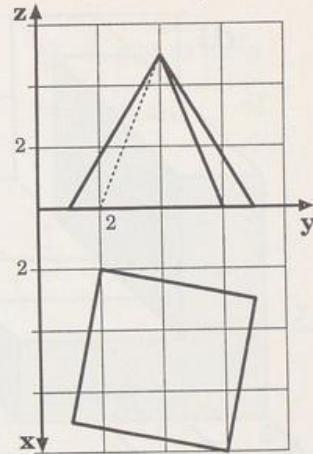
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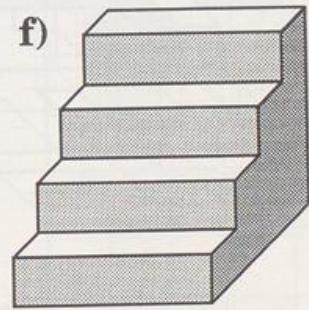
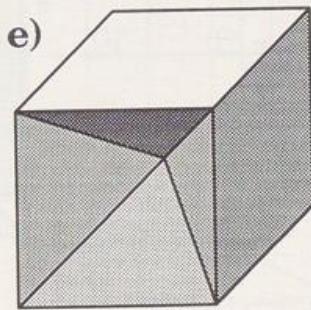
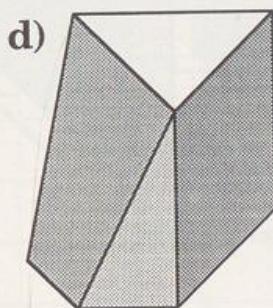
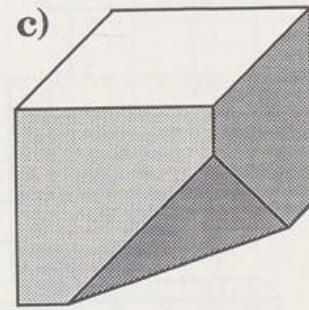
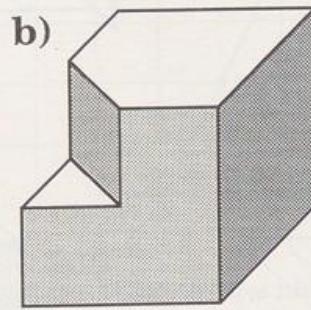
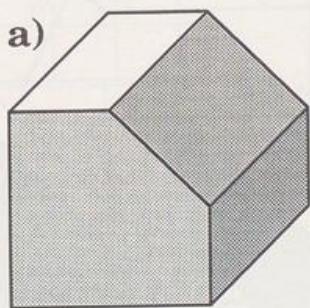
18/3. b)



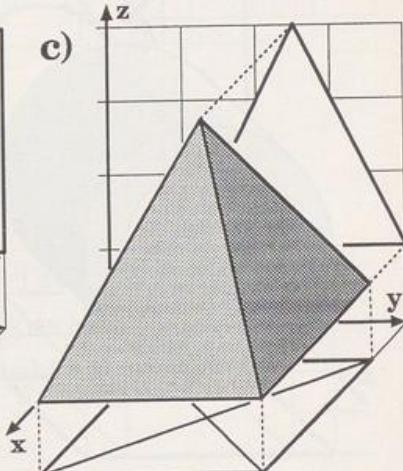
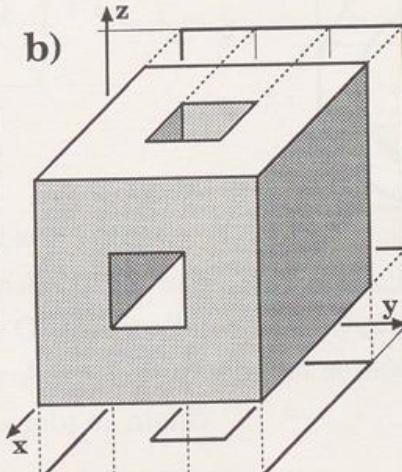
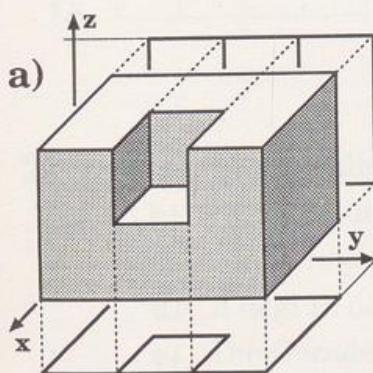
18/3. c)

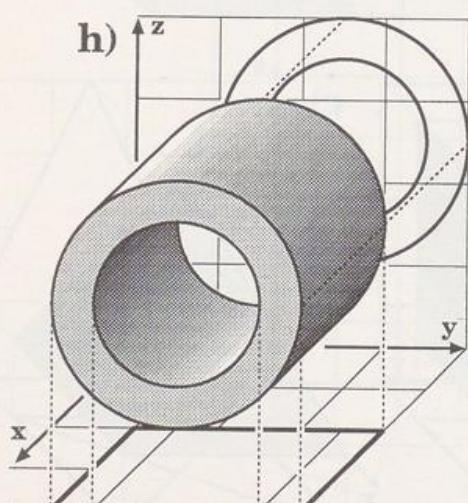
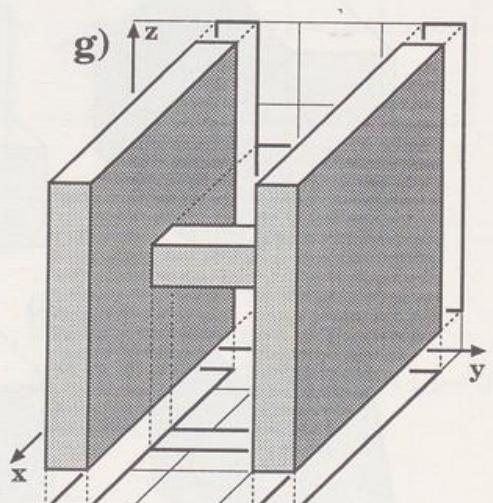
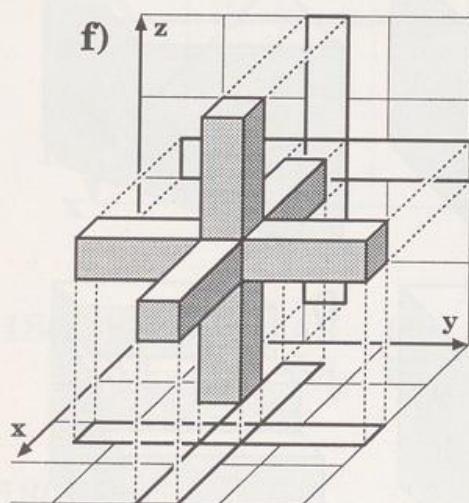
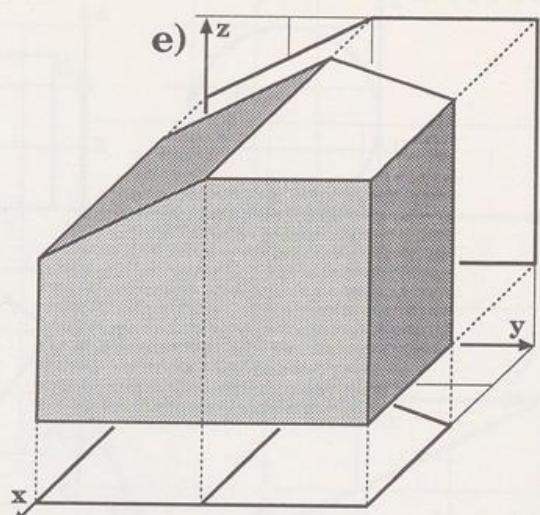
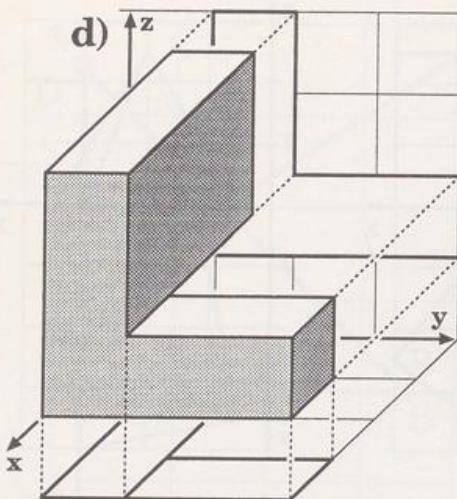


19/4



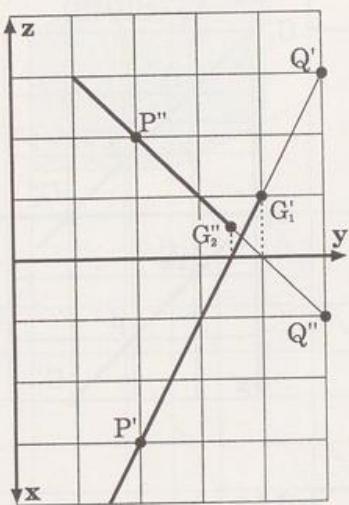
20/5



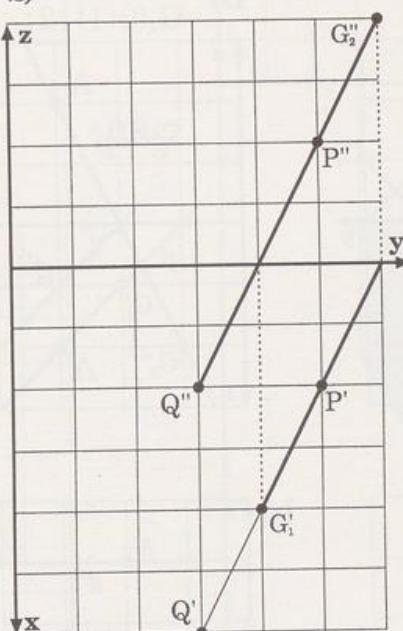


26/1.

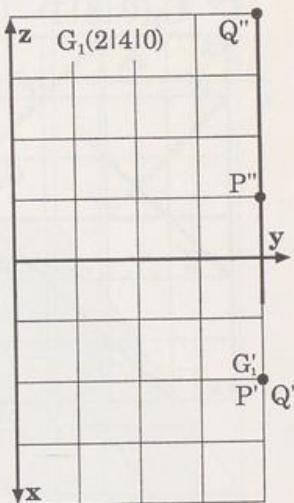
a) $G_1(-1|4|0)$ $G_2(0|3,5|0,5)$



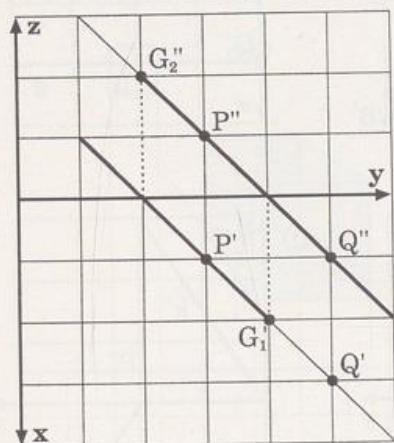
b) $G_1(4|4|0)$ $G_2(0|6|4)$



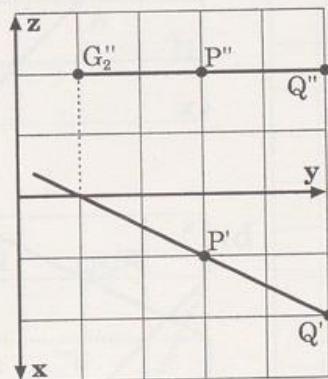
c) G_2 gibt es nicht



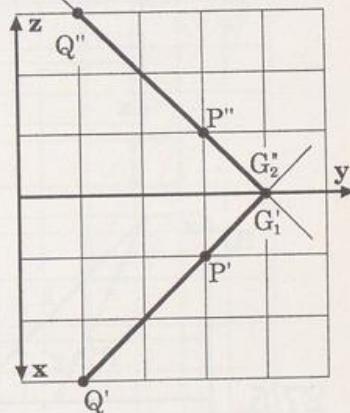
d) $G_1(2|4|0)$ $G_2(0|2|2)$



e) $G_2(0|1|2)$ G_1 gibt es nicht.



f) $G_1 = G_2(0|4|0)$



26/2. a) a ist parallel zur y-Achse

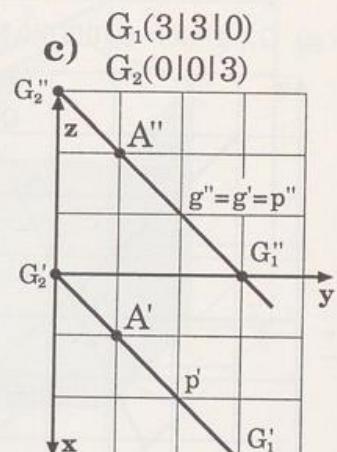
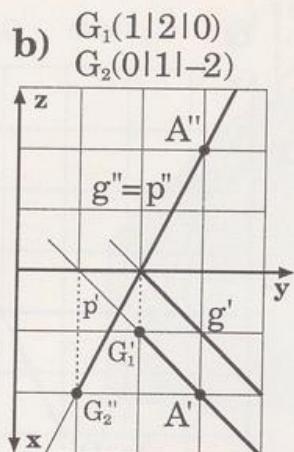
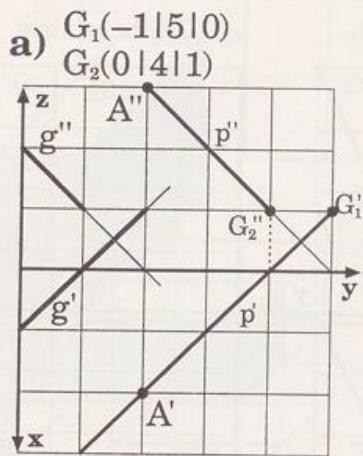
b) b liegt in der Aufrissebene und ist parallel zur y-Achse.

c) c liegt in der Grundrissalebene und ist senkrecht zur y-Achse.

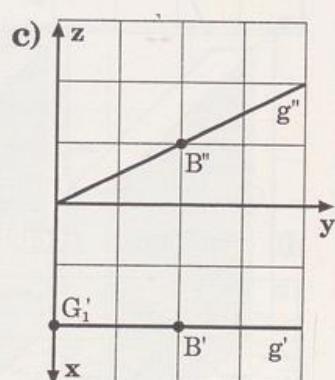
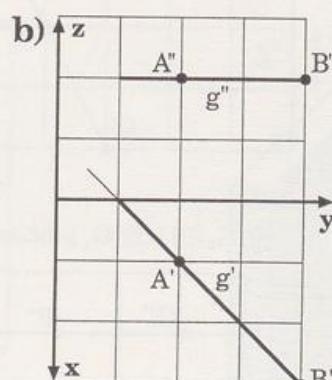
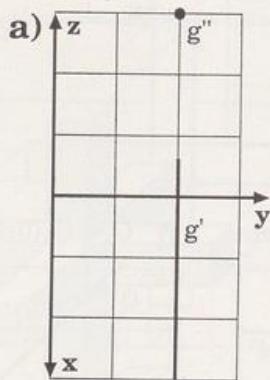
d) d liegt in der Aufrissebene und ist senkrecht zur y-Achse.

e) Die Gerade e gibt es nicht.

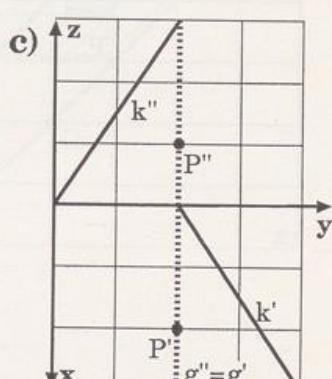
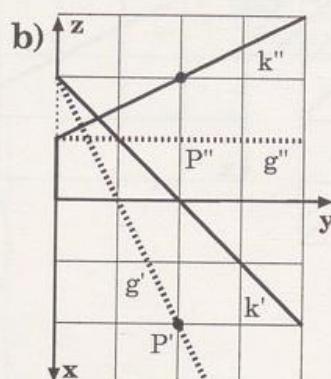
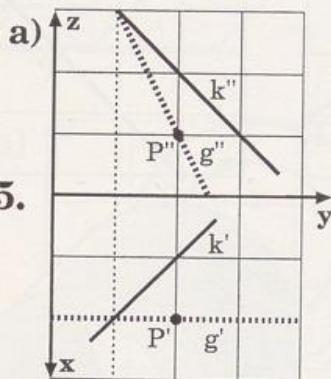
26/3.



26/4.

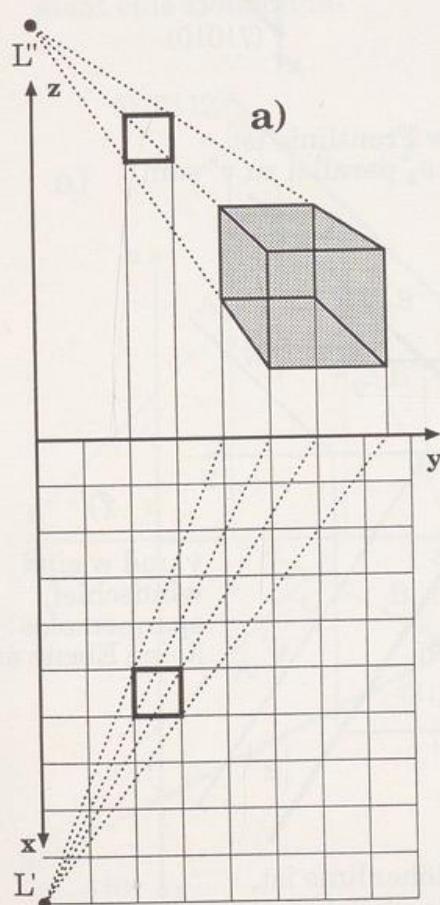
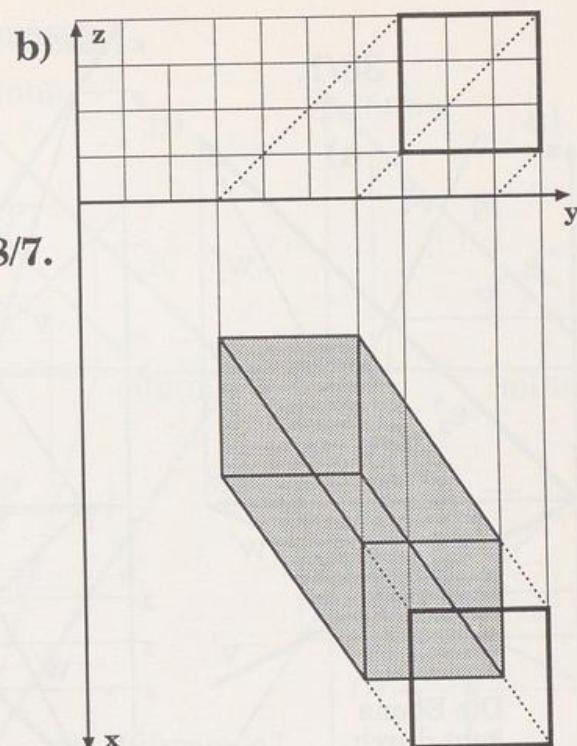
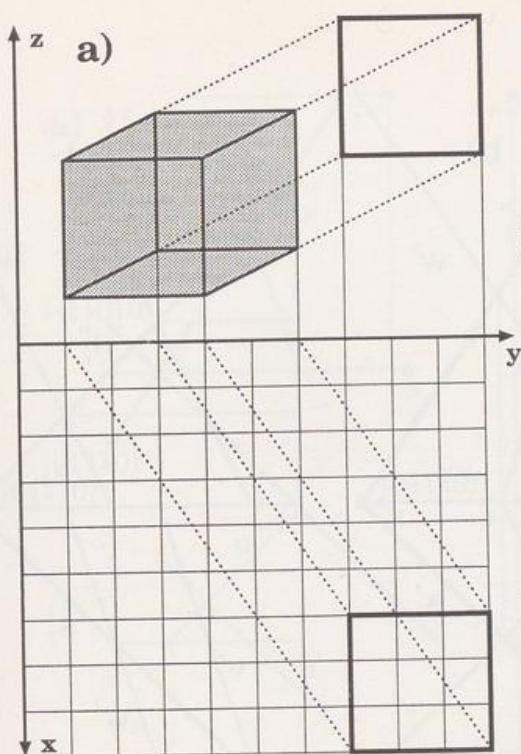


27/5.

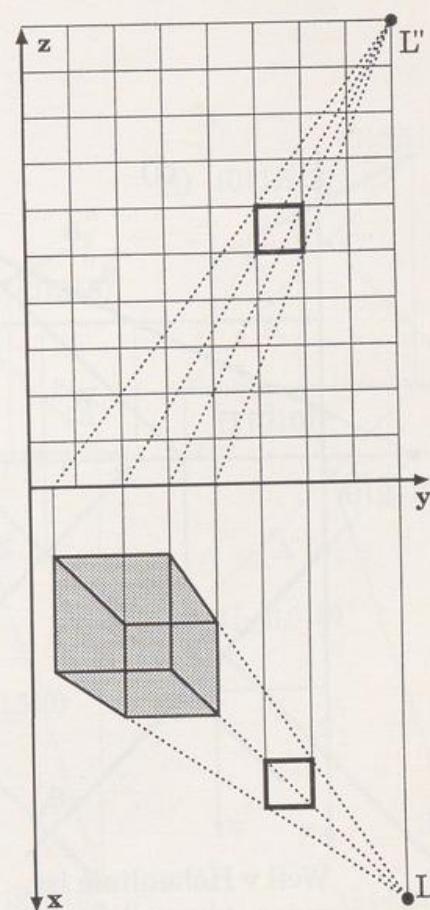


27/6.

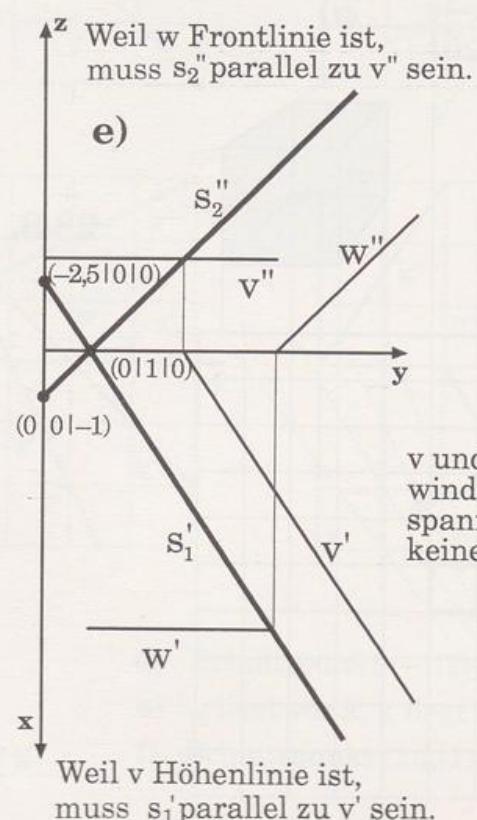
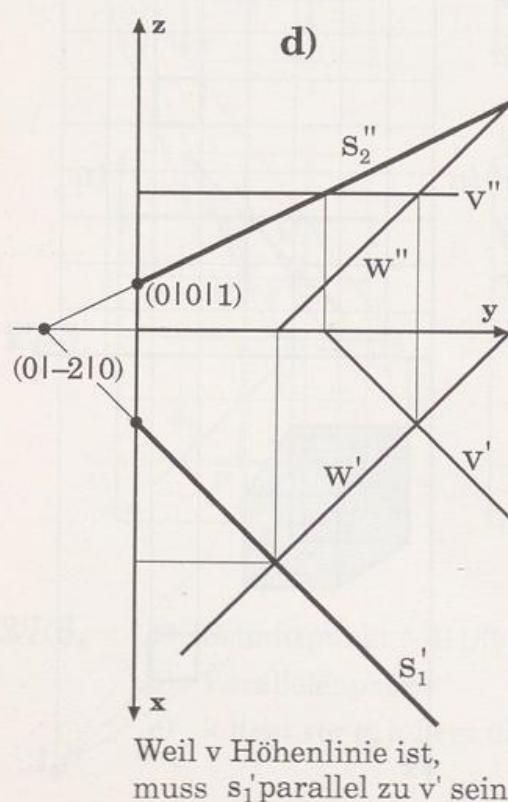
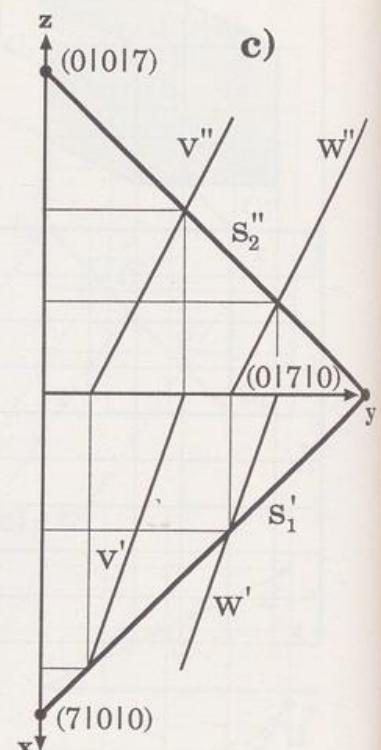
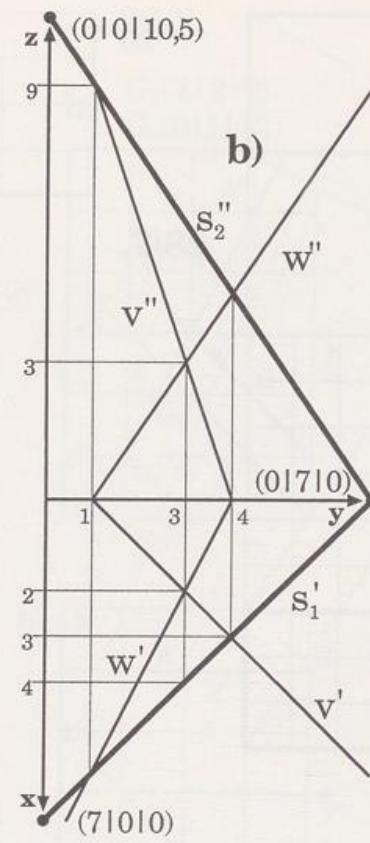
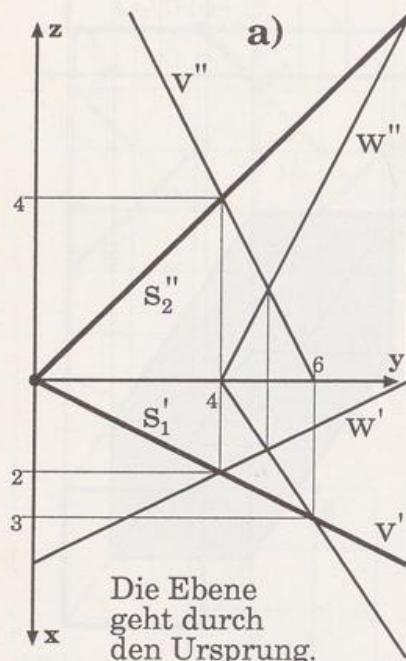
- a) Schnittpunkt $(-1|1|3)$
- b) Parallelenpaar
- c) k liegt vor g , k liegt über g .
- d) Schnittpunkt $(-1|2|-1)$
- e) g liegt vor k , k liegt über g .
- f) Schnittpunkt $(1|2|1)$



28/8.

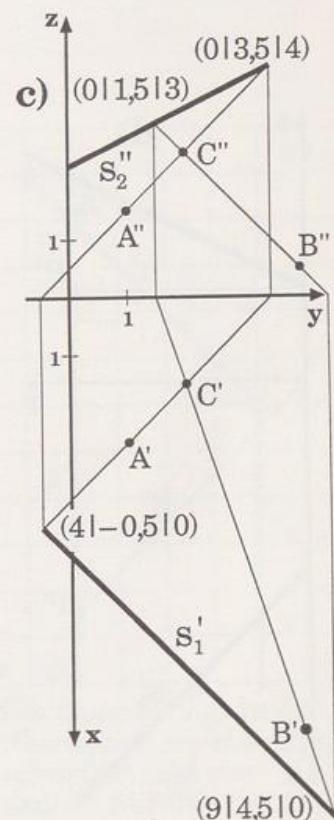
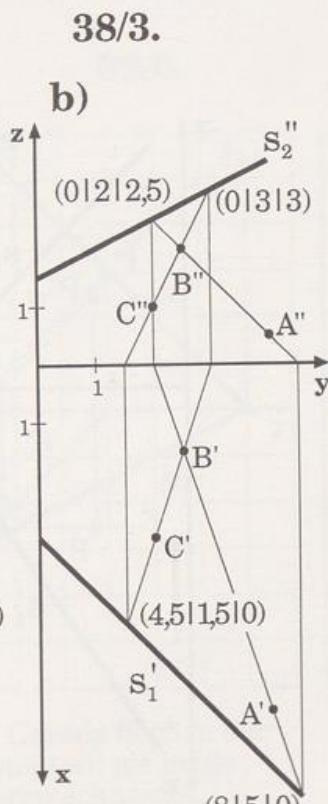
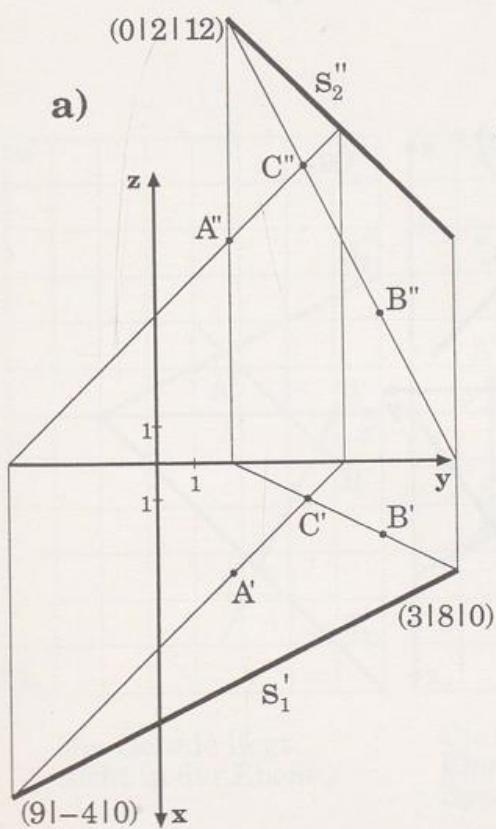
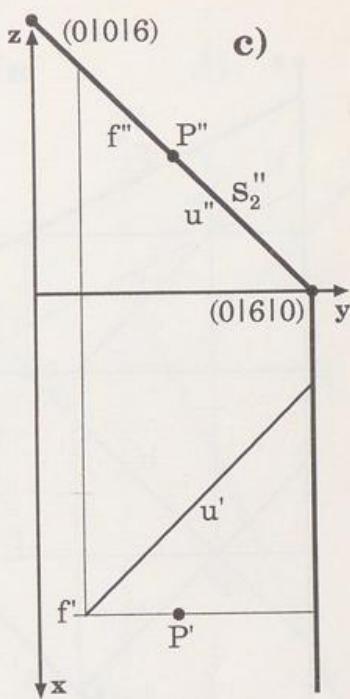
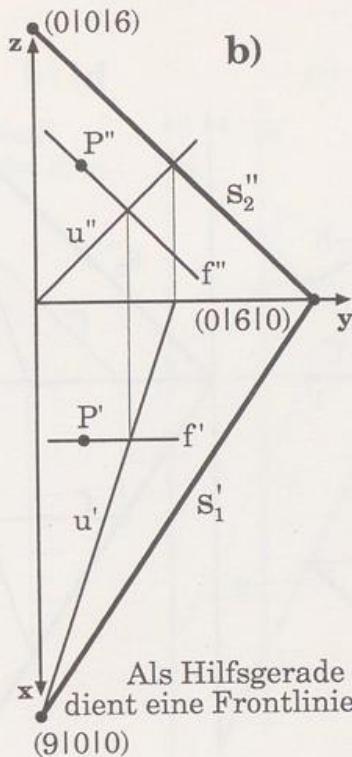
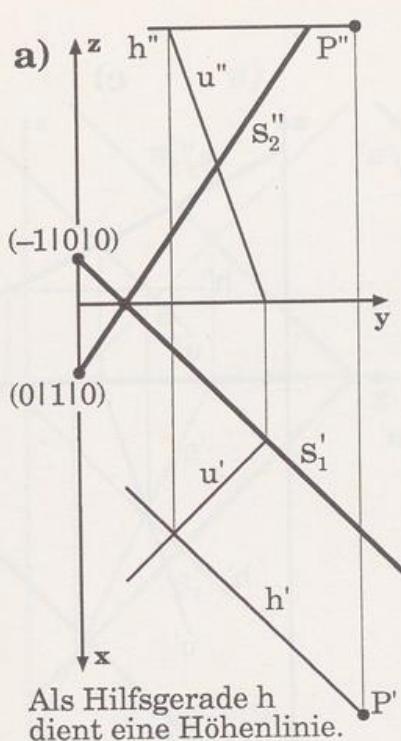


38/1.

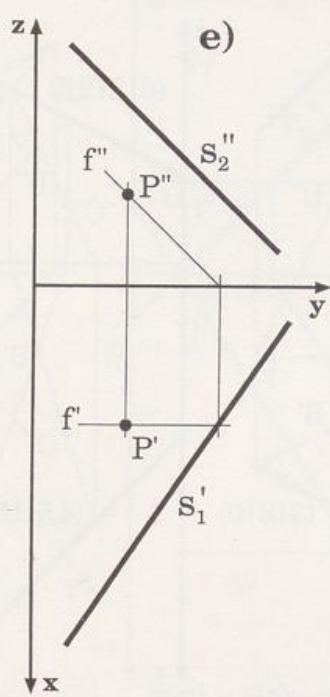
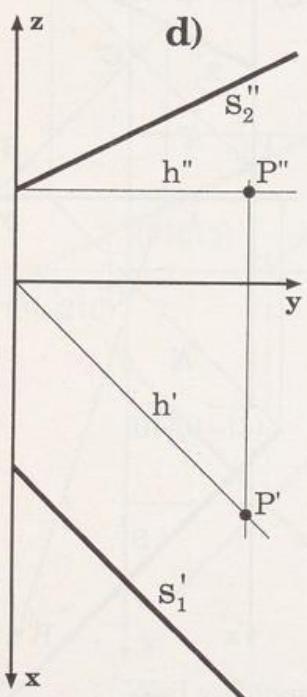
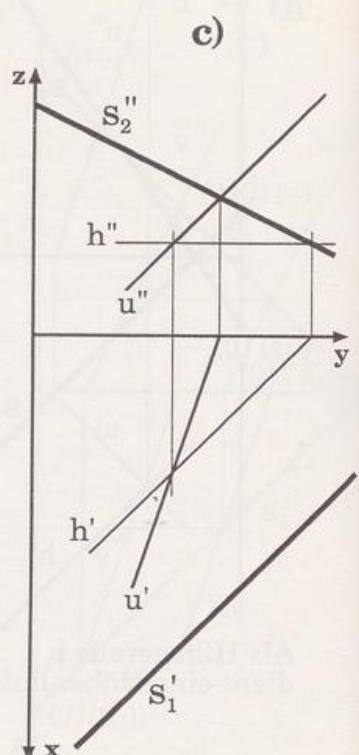
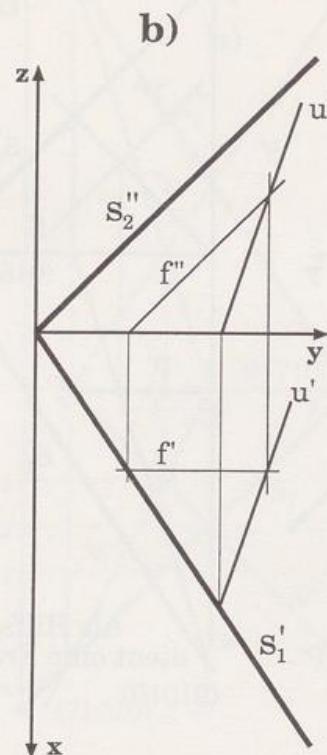
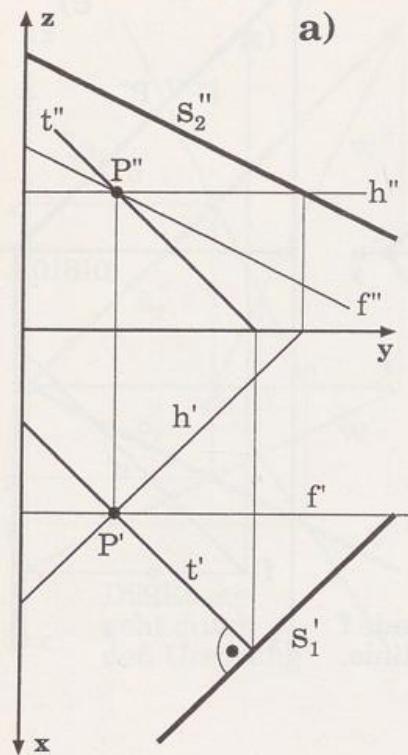


f)
v und w sind
windschief,
spannen also
keine Ebene auf.

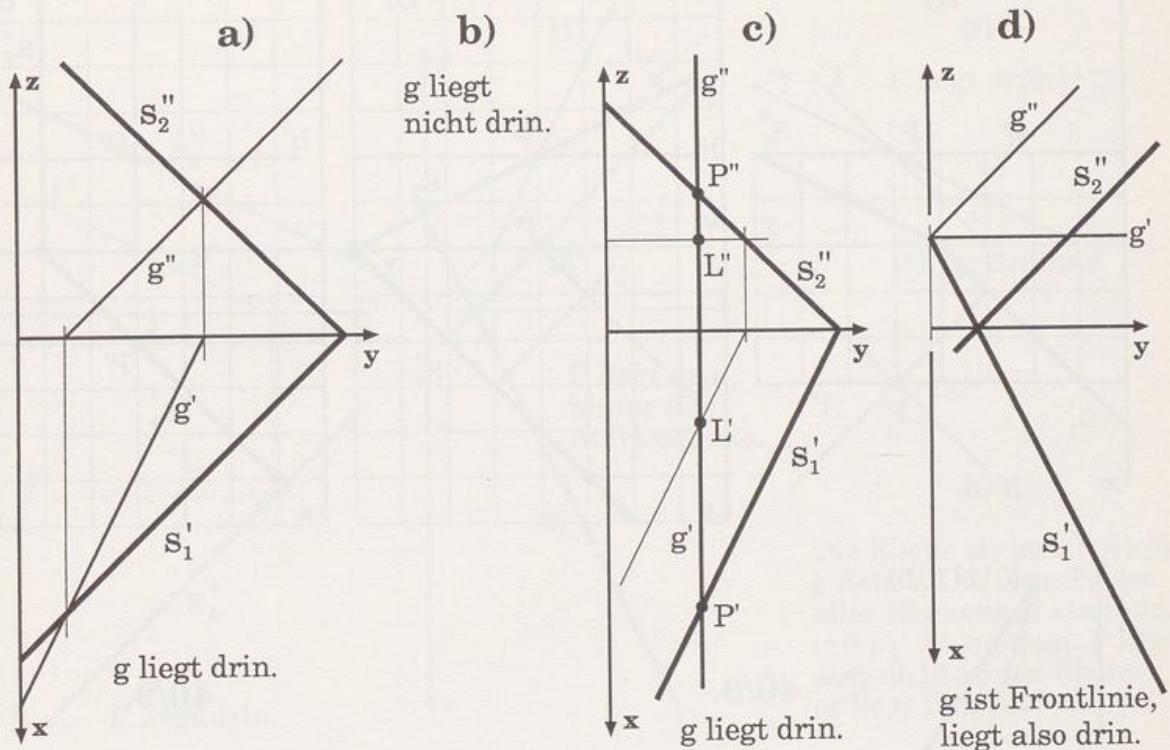
38/2.



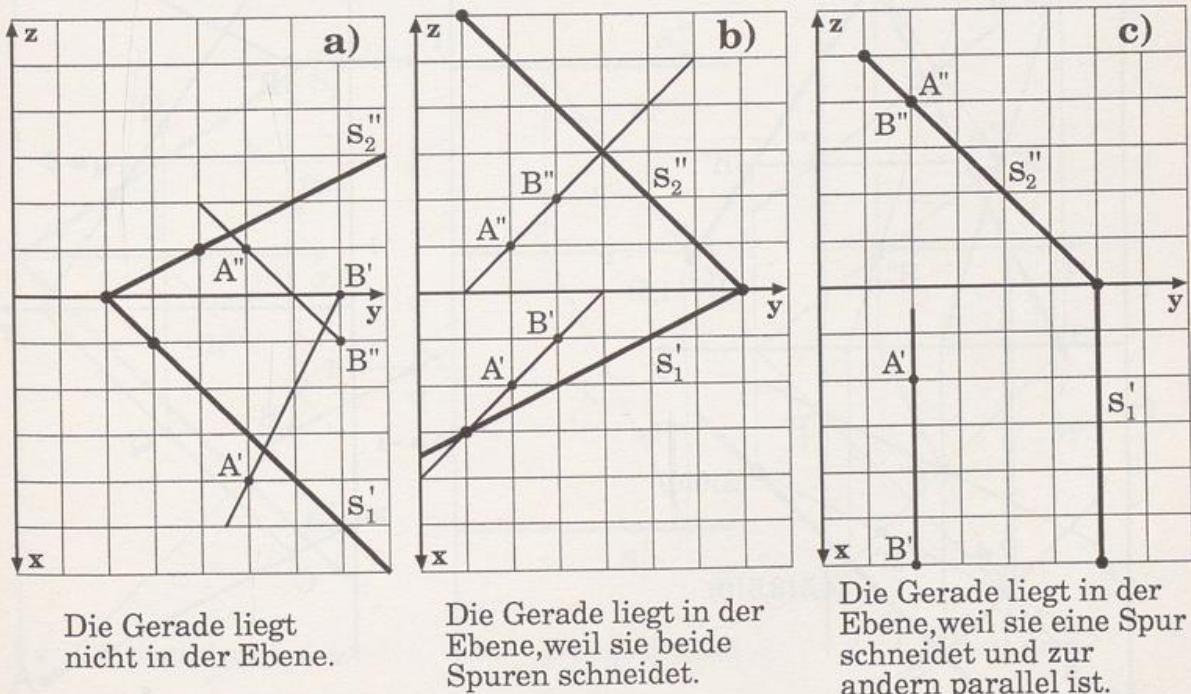
39/4.



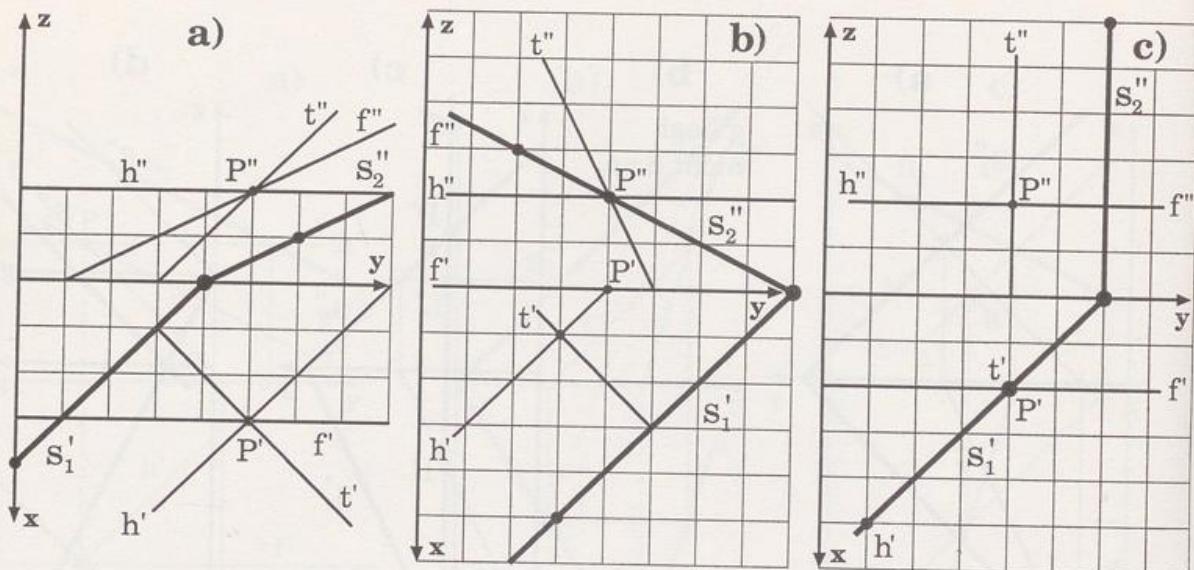
39/5.



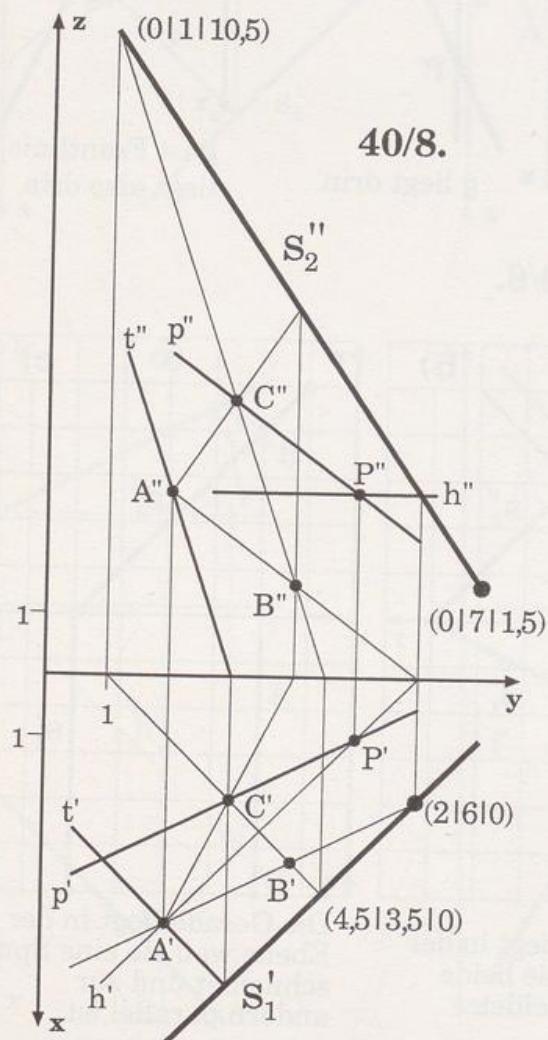
39/6.



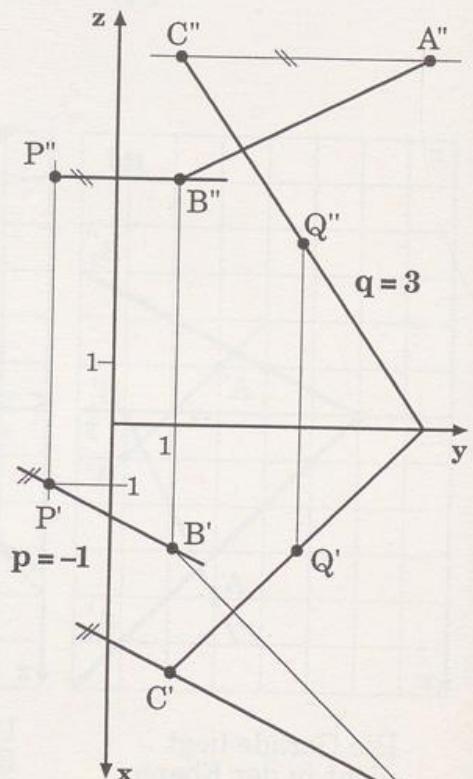
40/7.



40/8.

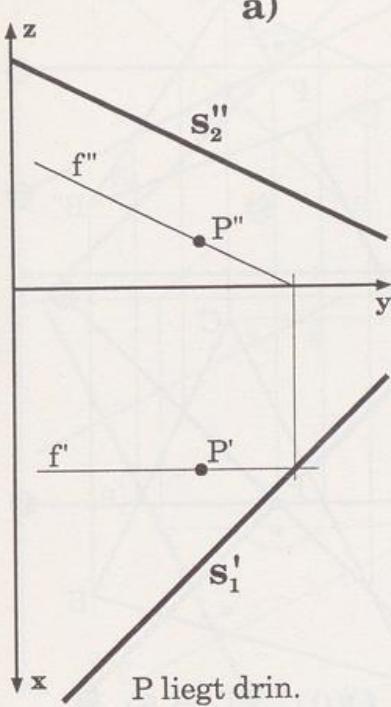


40/9.

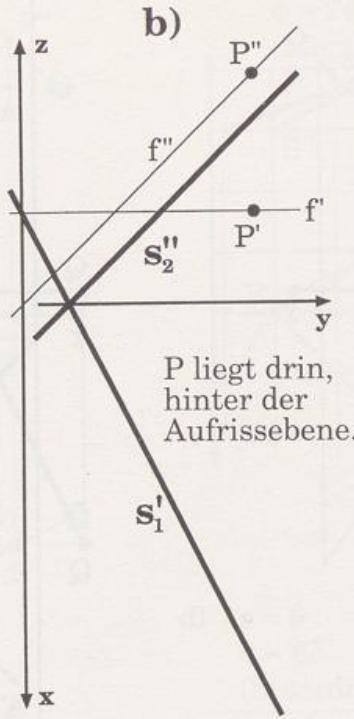


40/10.

c)



a)



b)

c)

P liegt drüber.

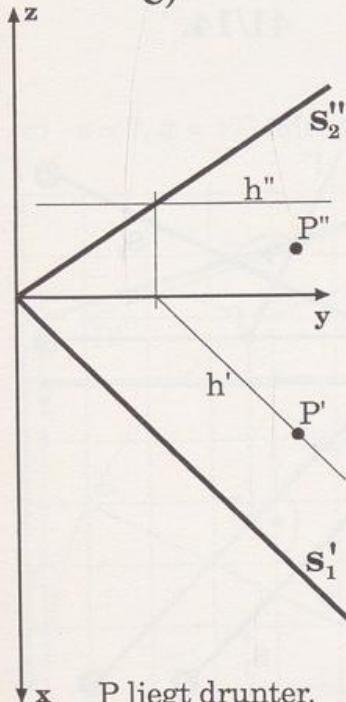
d)

P liegt drunter.

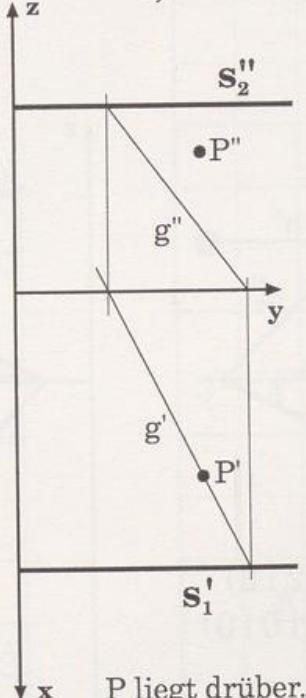
h)

Die Ebene ist parallel zur z-Achse. Die Grundrisse aller Ebenenpunkte fallen mit s_1' zusammen. P liegt also nicht in der Ebene, er liegt links davon.

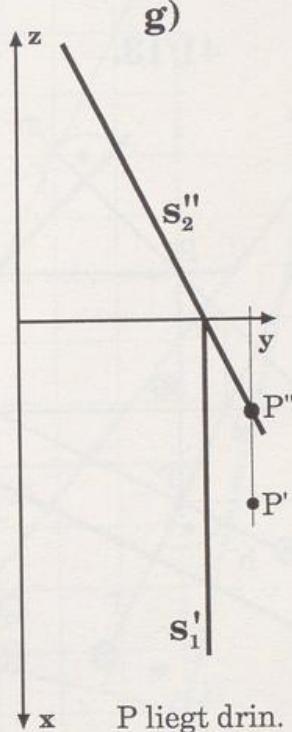
e)



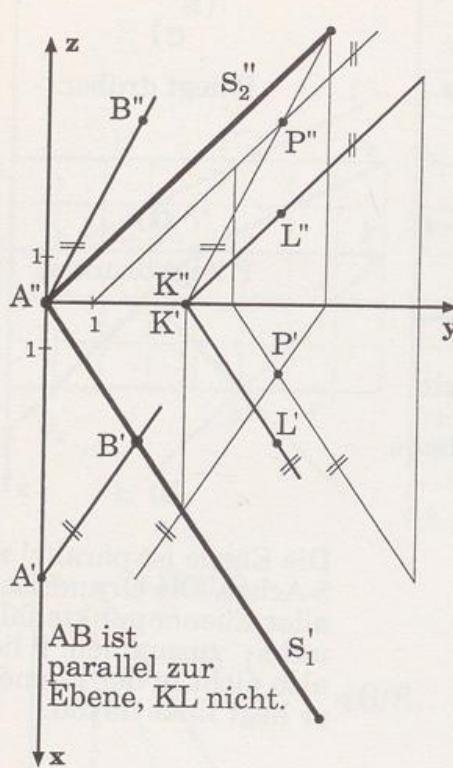
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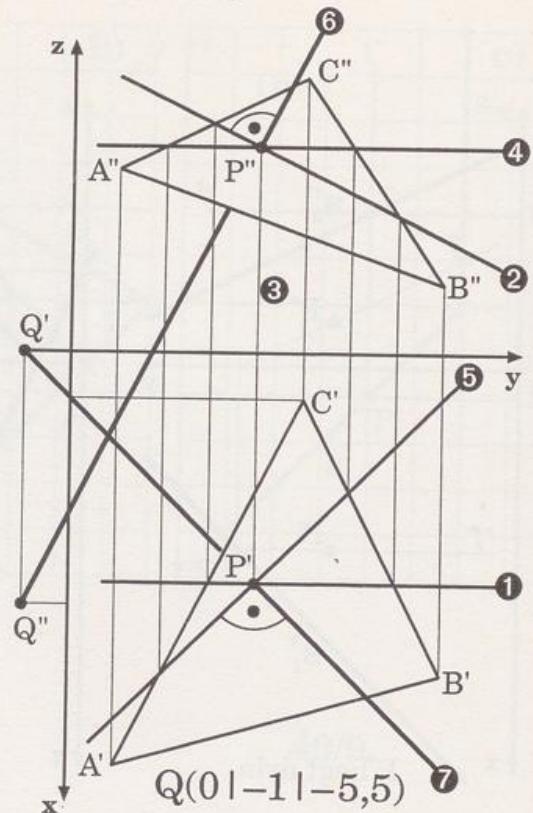
g)



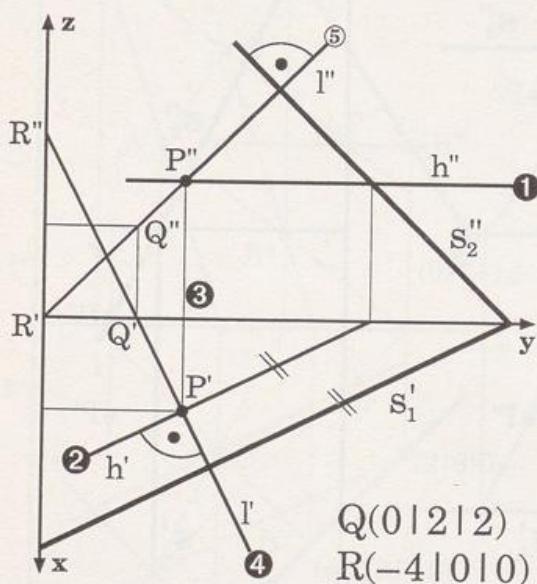
41/11.



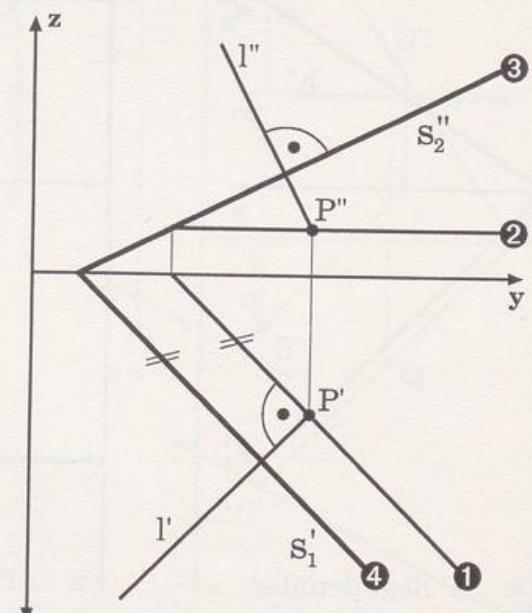
41/12.

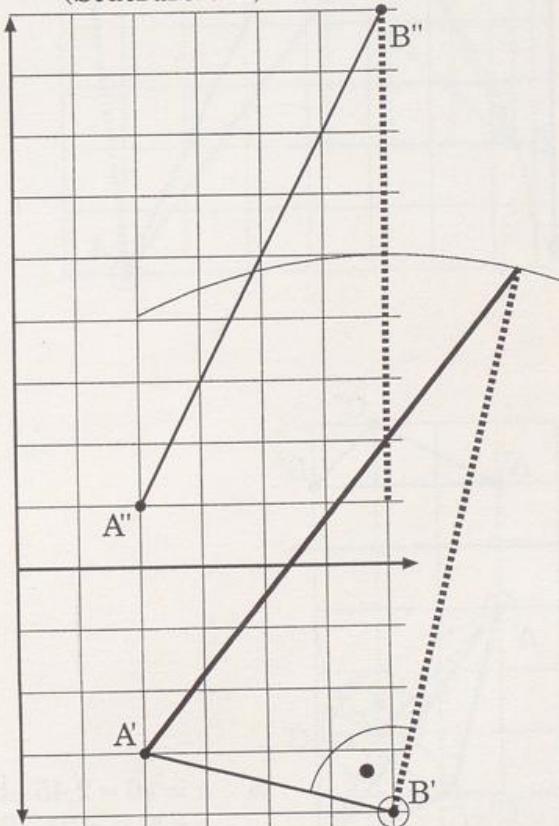
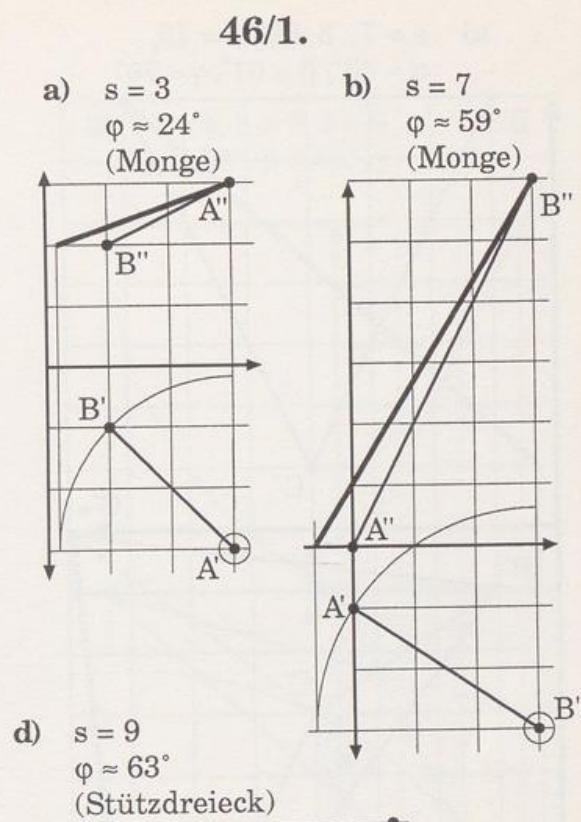
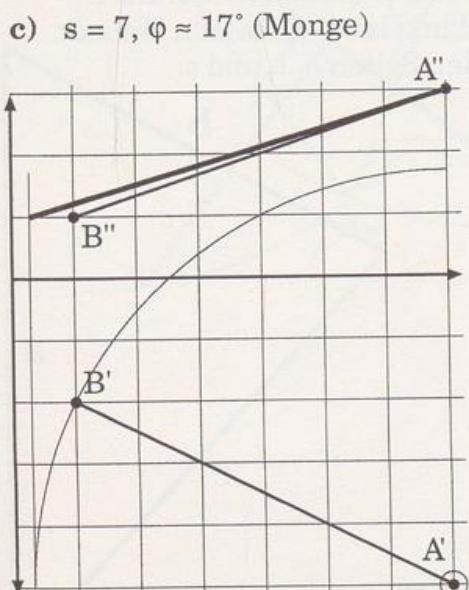
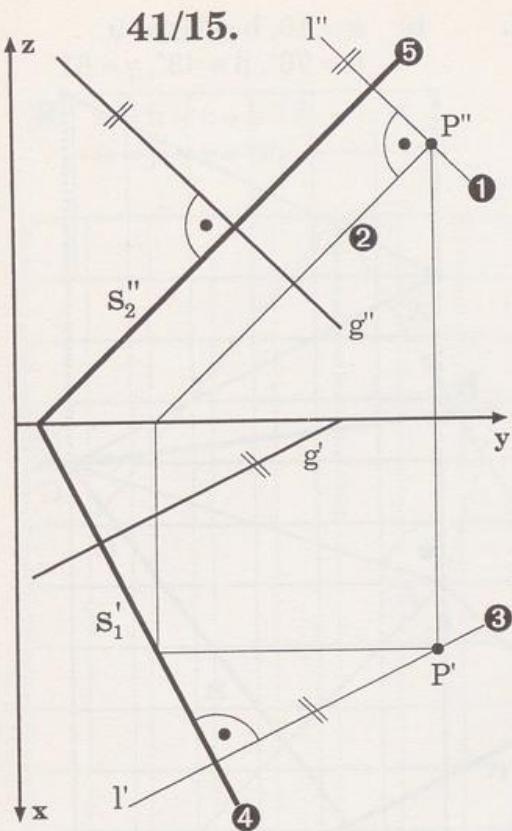


41/13.

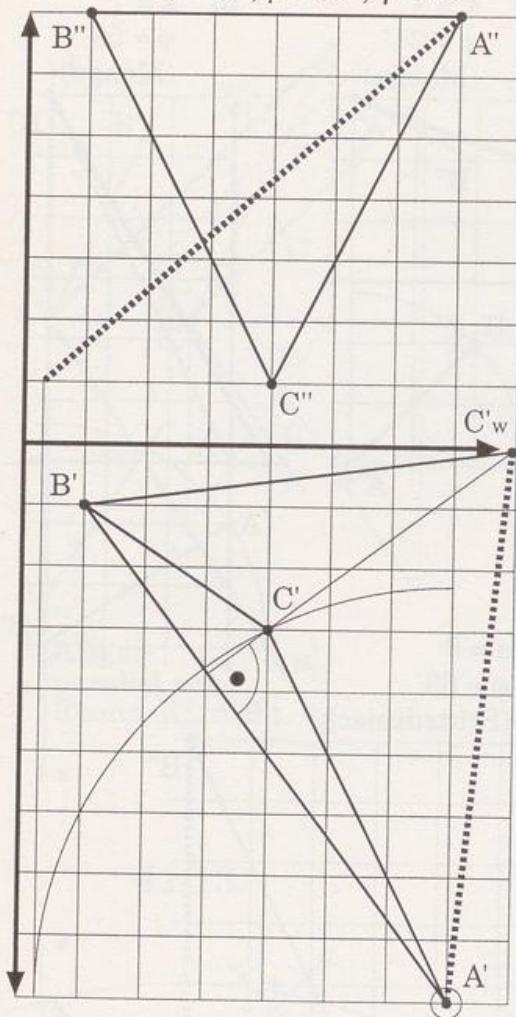


41/14.



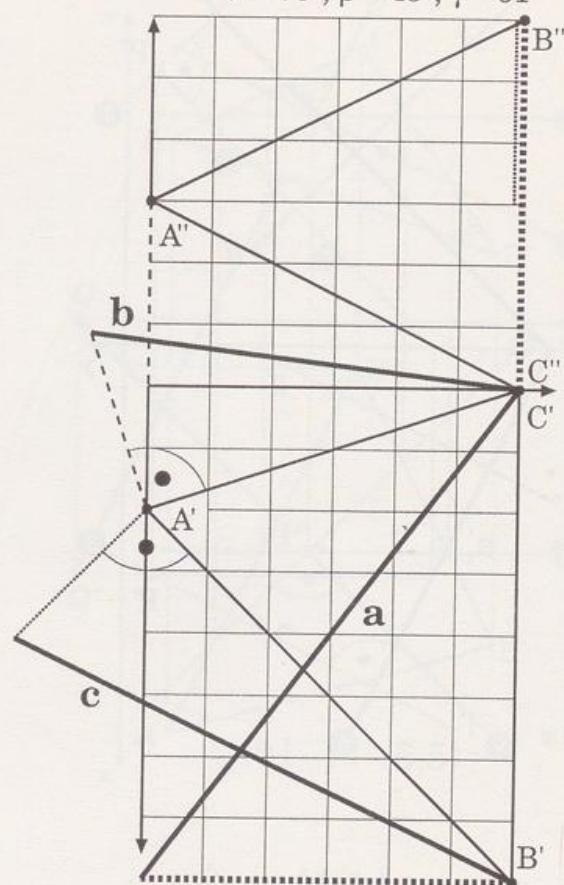


a) $a = 7, b = 9, c = 10,$
 $\alpha \approx 43^\circ, \beta \approx 61^\circ, \gamma \approx 76^\circ$

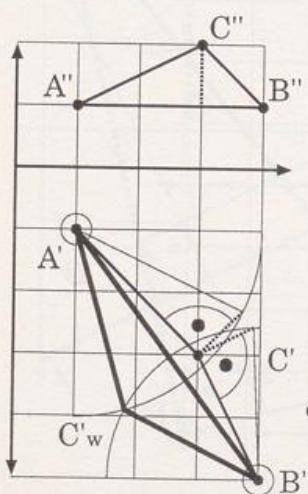


46/2.

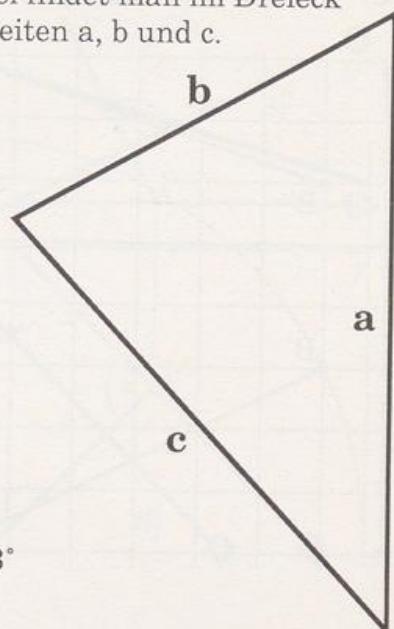
b) $a = 10, b = 7, c = 9$
 $\alpha \approx 76^\circ, \beta \approx 43^\circ, \gamma \approx 61^\circ$



Die Seitenlängen a, b und c sind mit Stützdreiecken konstruiert.
 Die Winkel findet man im Dreieck mit den Seiten a, b und c .

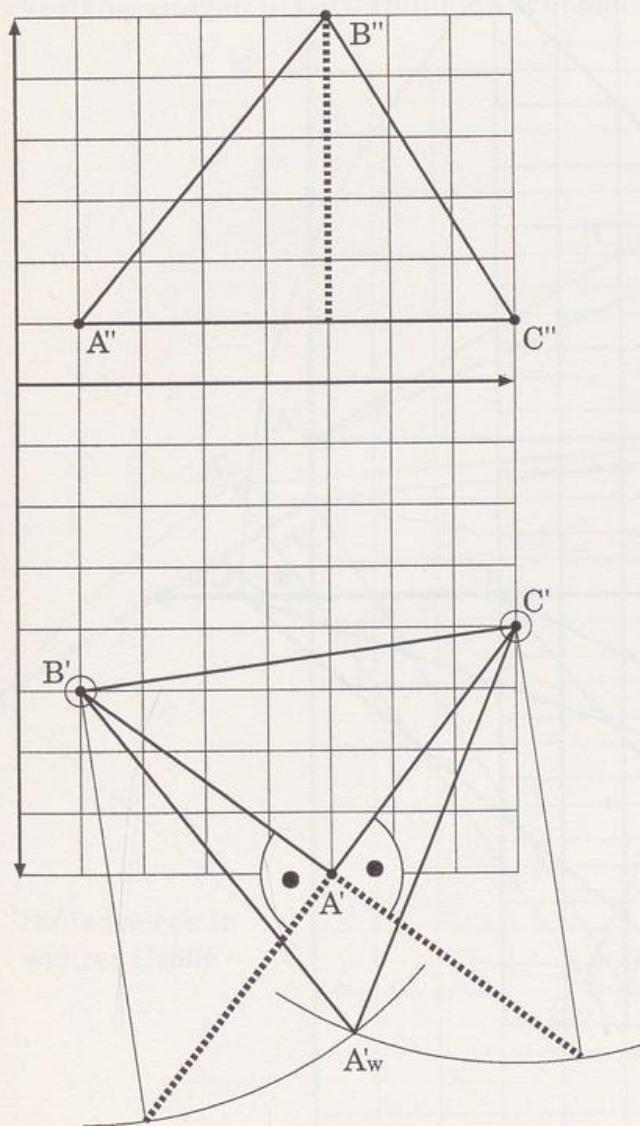


c) $a = \sqrt{6} \approx 2,45, b = 3,$
 $c = 5, \alpha \approx 21^\circ, \beta \approx 26^\circ, \gamma \approx 133^\circ$



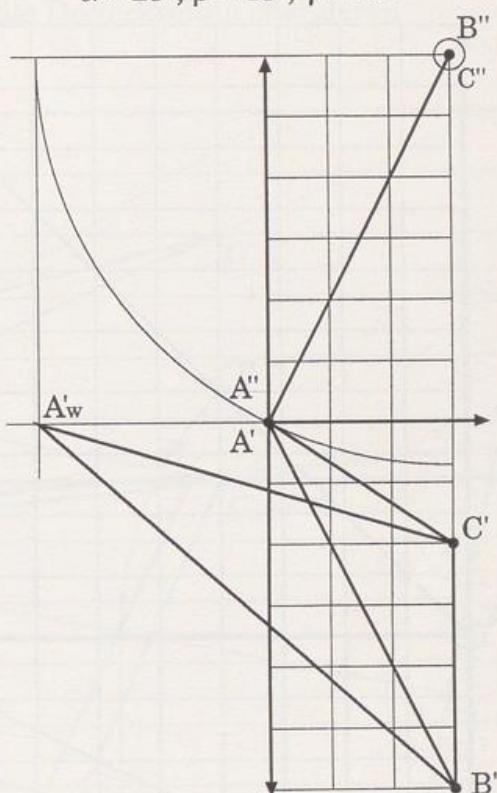
46/2.

d) $a = b = c = 5\sqrt{2} \approx 7,07$
 $\alpha = \beta = \gamma = 60^\circ$



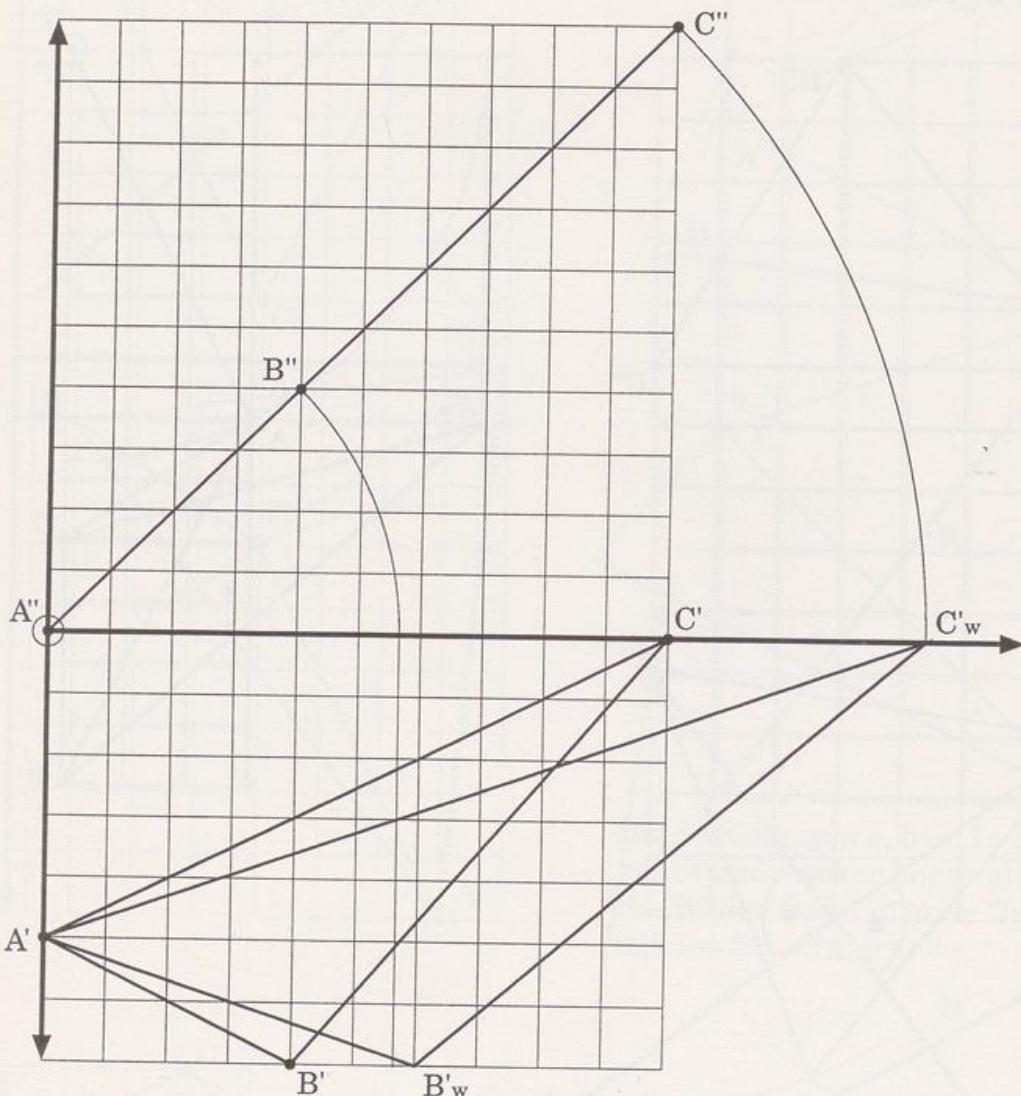
47/3.

a) $a = 4, b = 7, c = 9$
 $\alpha \approx 25^\circ, \beta \approx 48^\circ, \gamma \approx 107^\circ$



47/3.

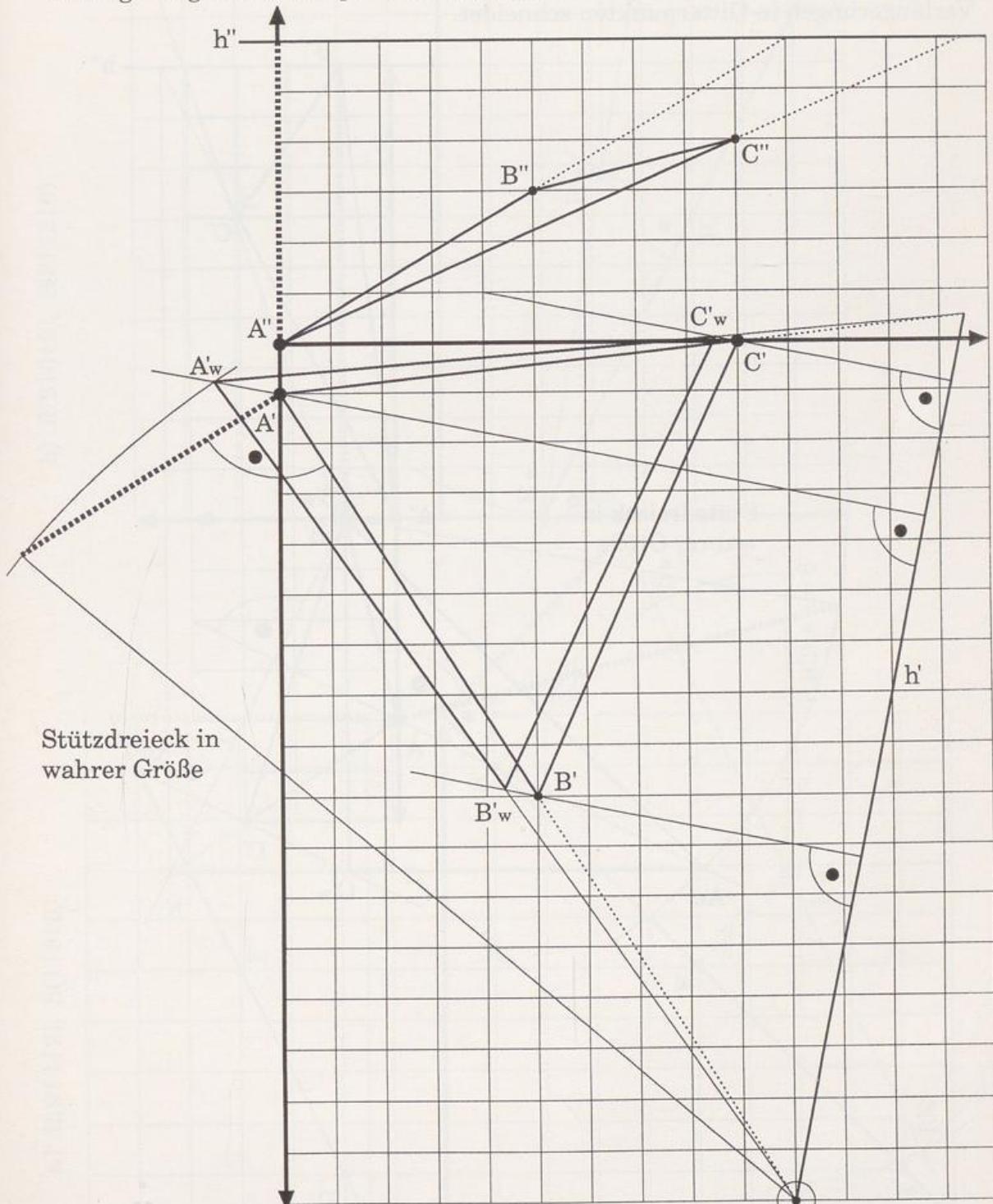
b) $a = 11$, $b = 15$, $c = 6$, $\alpha \approx 39^\circ$, $\beta \approx 121^\circ$, $\gamma \approx 20^\circ$



47/3.

c) $a = b = c = 7\sqrt{2} \approx 9,9$, $\alpha = \beta = \gamma = 60^\circ$

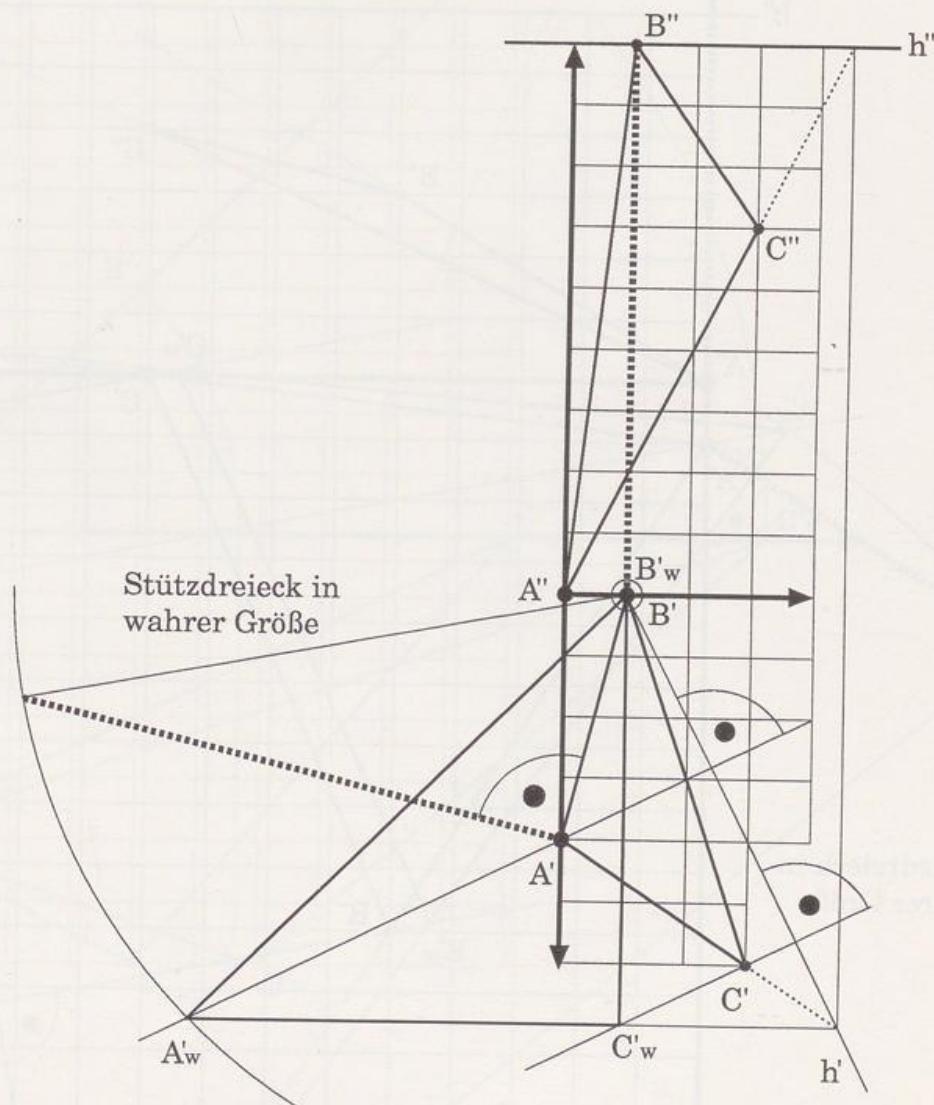
Konstruktion mit Schwenk von ABC um Höhenlinie h. Für h wählt man im Aufriss nach Möglichkeit eine Waagrechte, die Dreieckseiten oder deren Verlängerungen in Gitterpunkten schneidet.



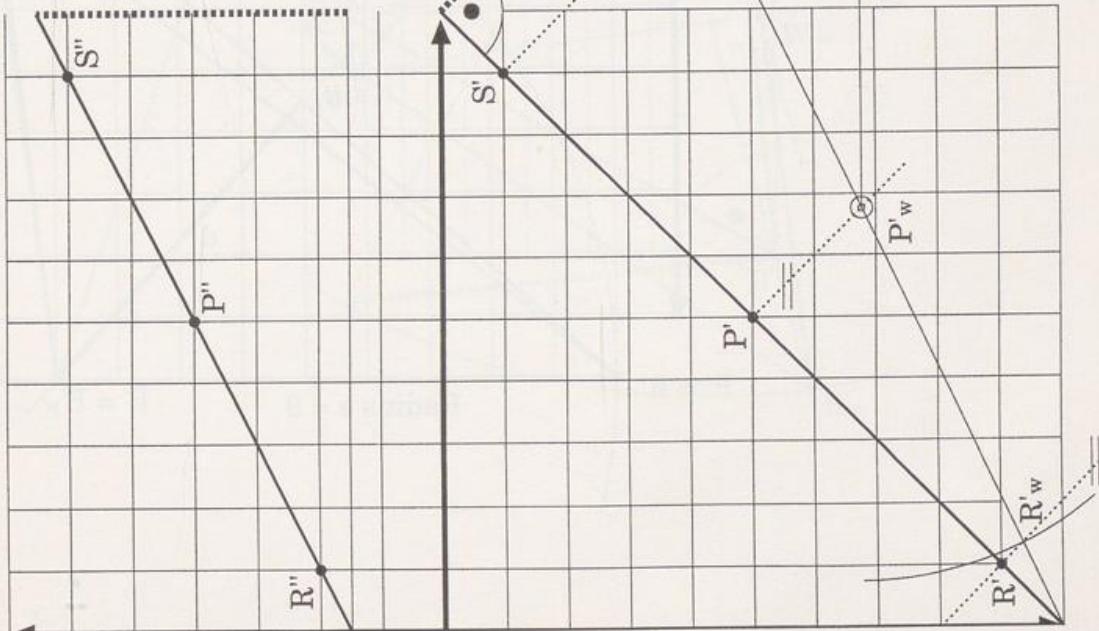
47/3.

d) $a = b = 7$, $c = 7\sqrt{2} \approx 9,9$, $\alpha = \beta = 45^\circ$, $\gamma = 90^\circ$

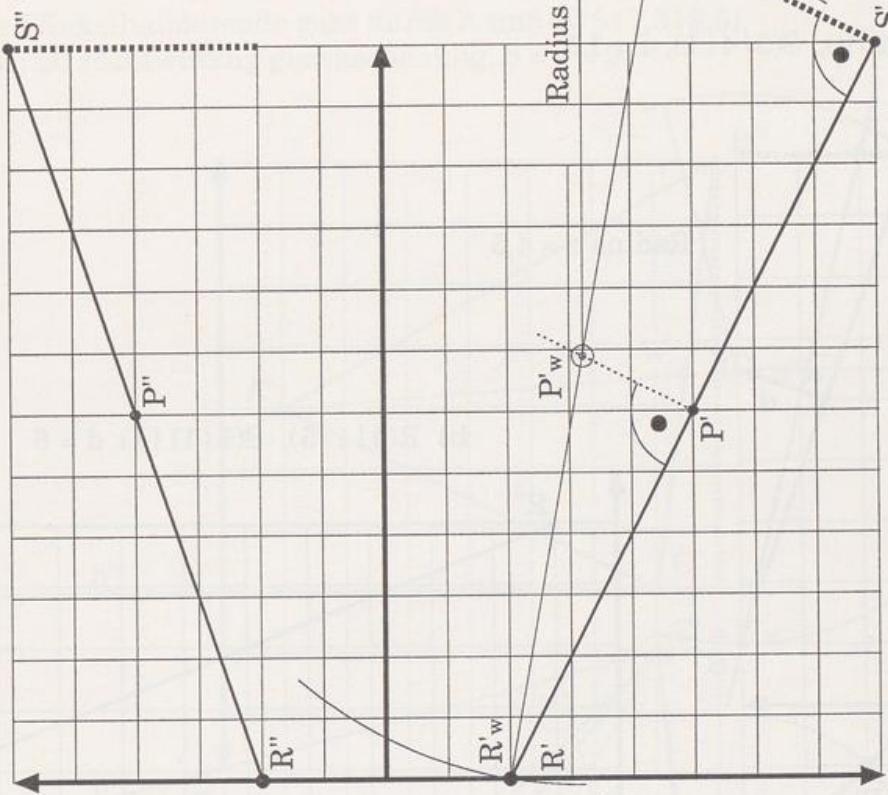
Konstruktion mit Schwenk von ABC um Höhenlinie h. Für h wählt man im Aufriss nach Möglichkeit eine Waagrechte, die Dreieckseiten oder deren Verlängerungen in Gitterpunkten schneidet.



a) R(9|11|2), S(8|19|6)



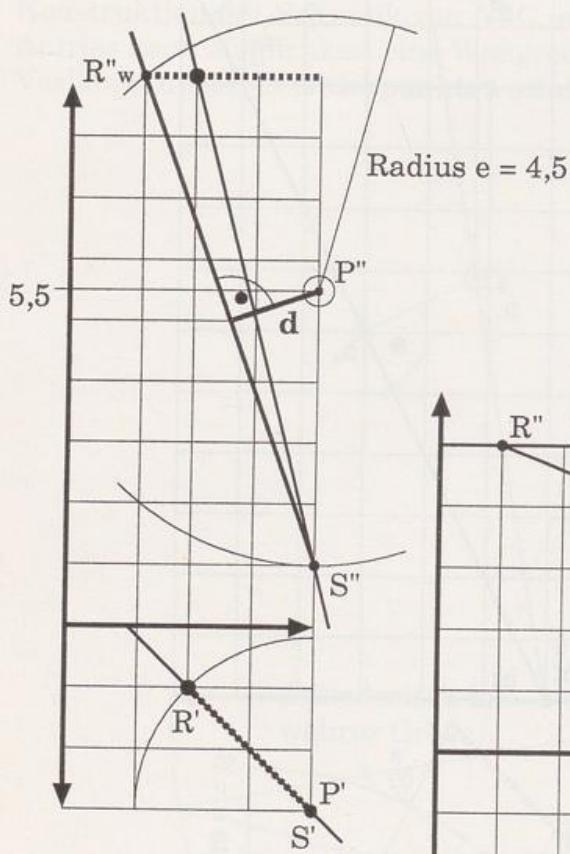
b) R(2|0|2), S(8|12|6)



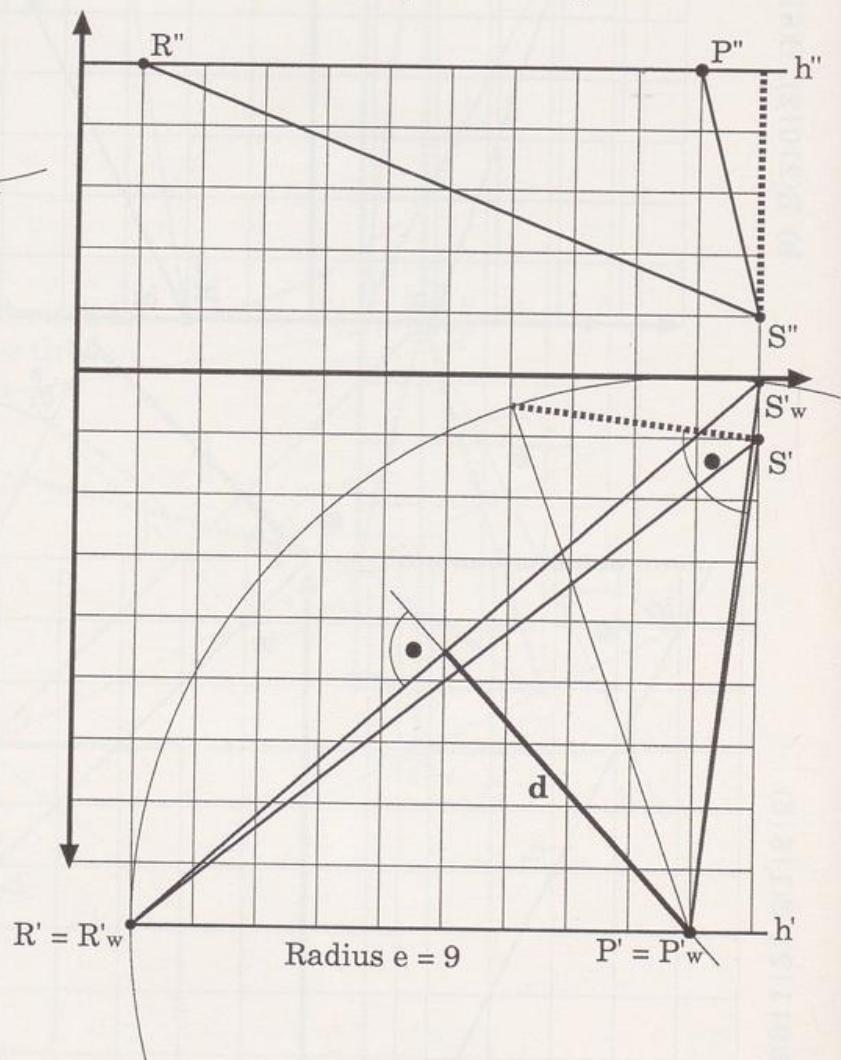
47/4.

47/5.

a) R(1|2|9), S(3|4|1), d = 1,5

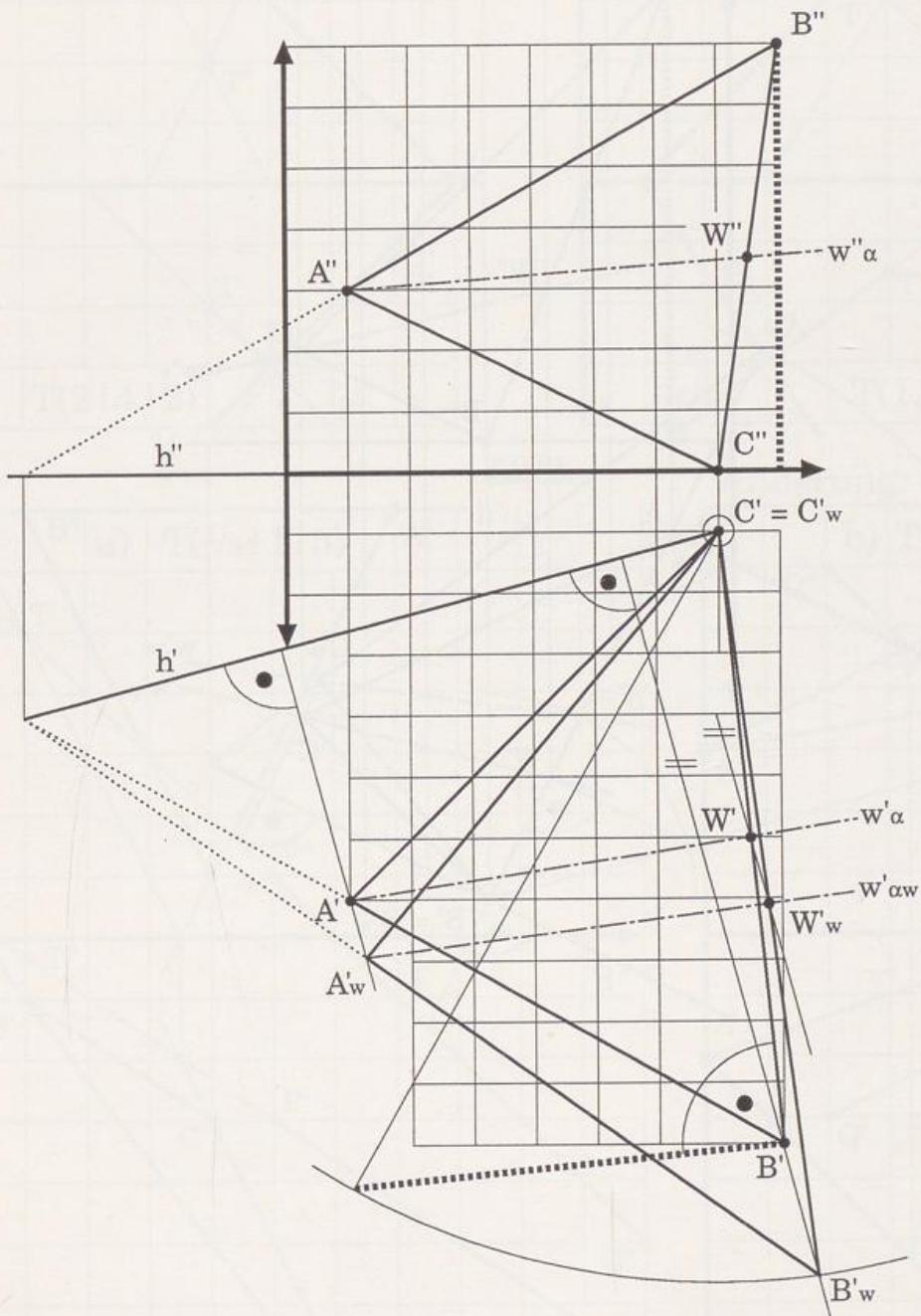


b) R(9|1|5), S(1|11|1), d = 6



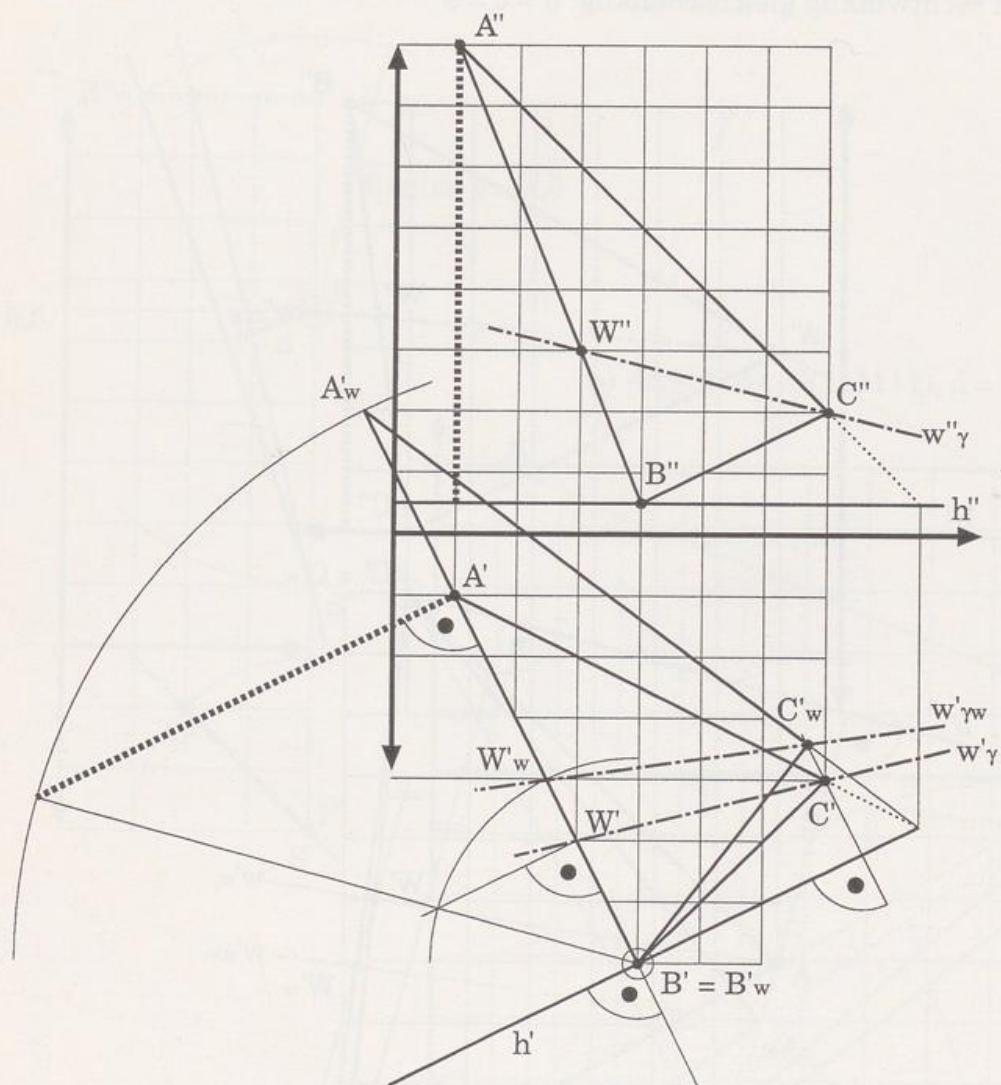
47/6.

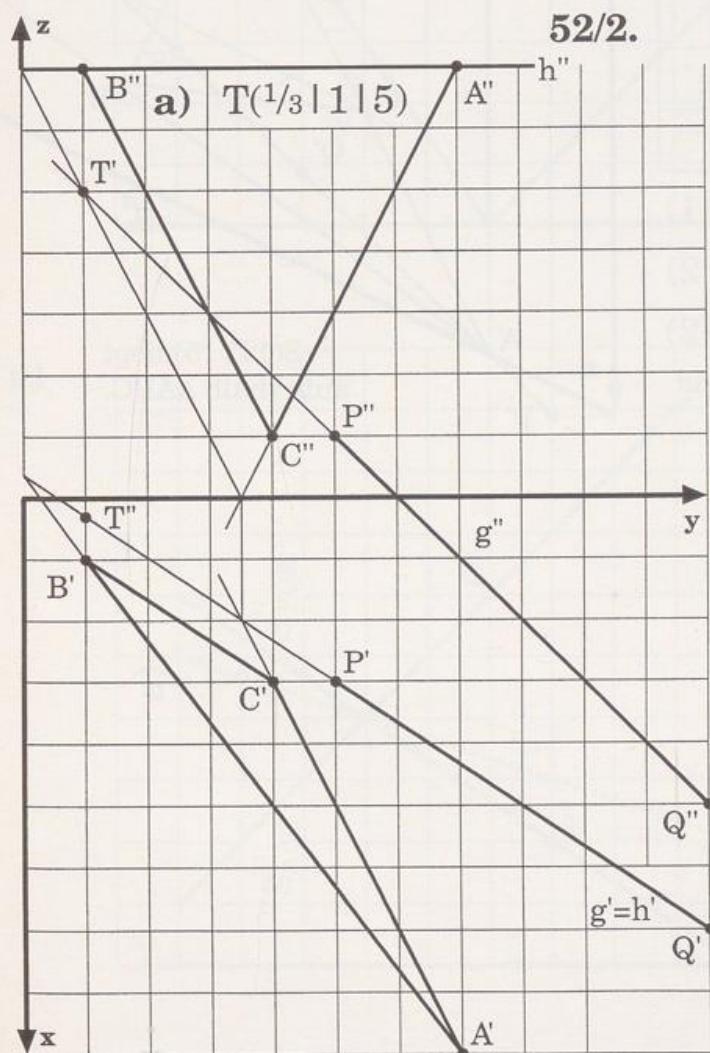
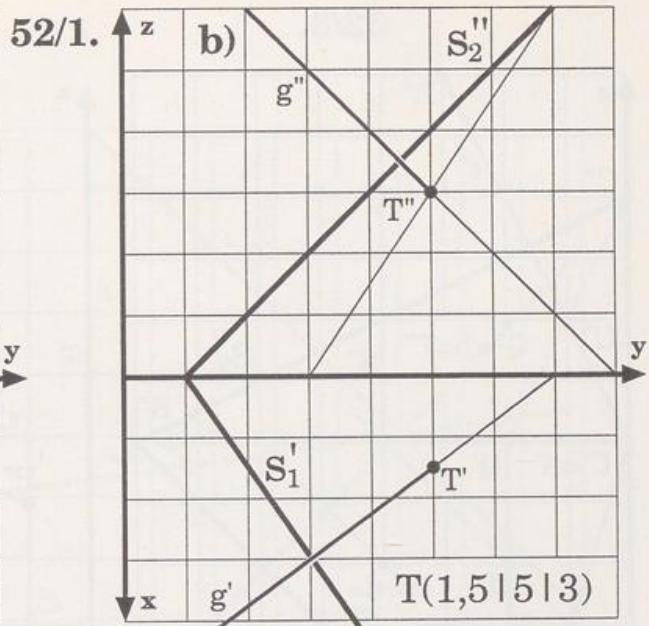
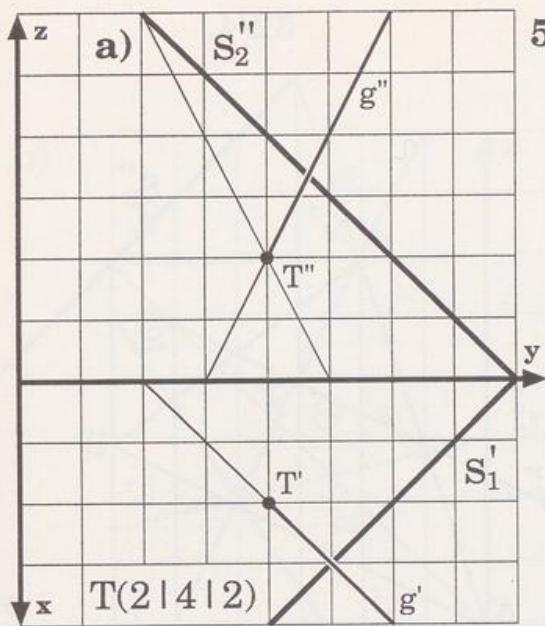
- a) Die Winkelhalbierende geht durch A und W(6|7,5|3,5),
 ABC ist rechtwinklig gleichschenklig: $b = c = 9$



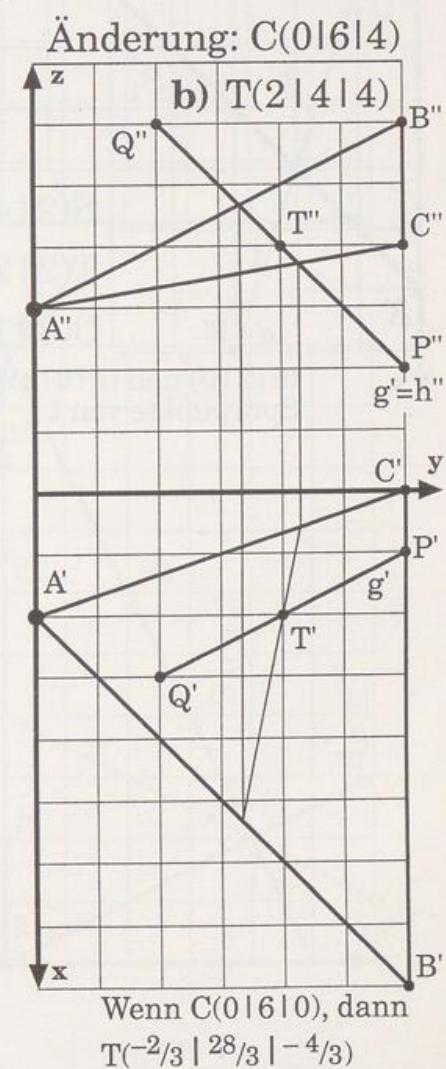
47/6.

b) $w\gamma$ halbiert $\gamma = 90^\circ$, geht durch C und W(5|3|3)

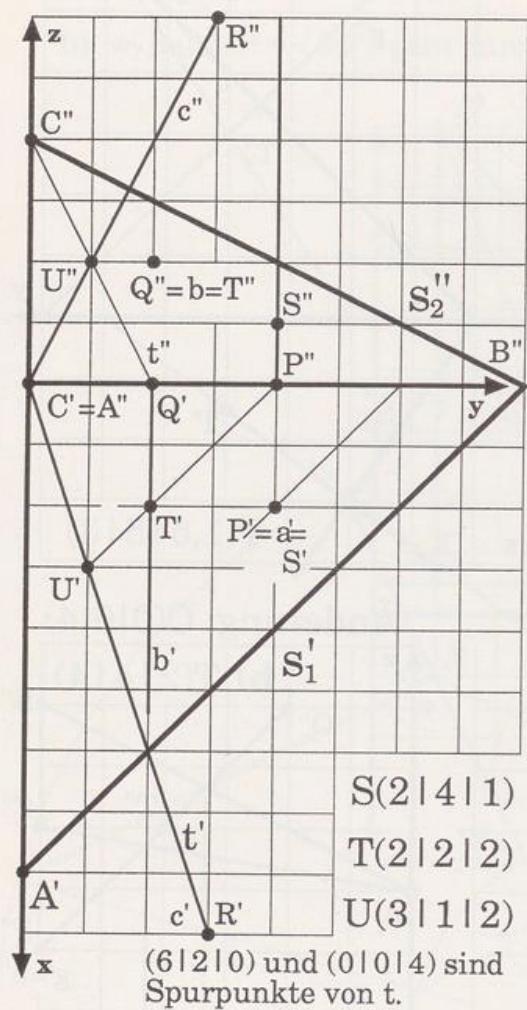




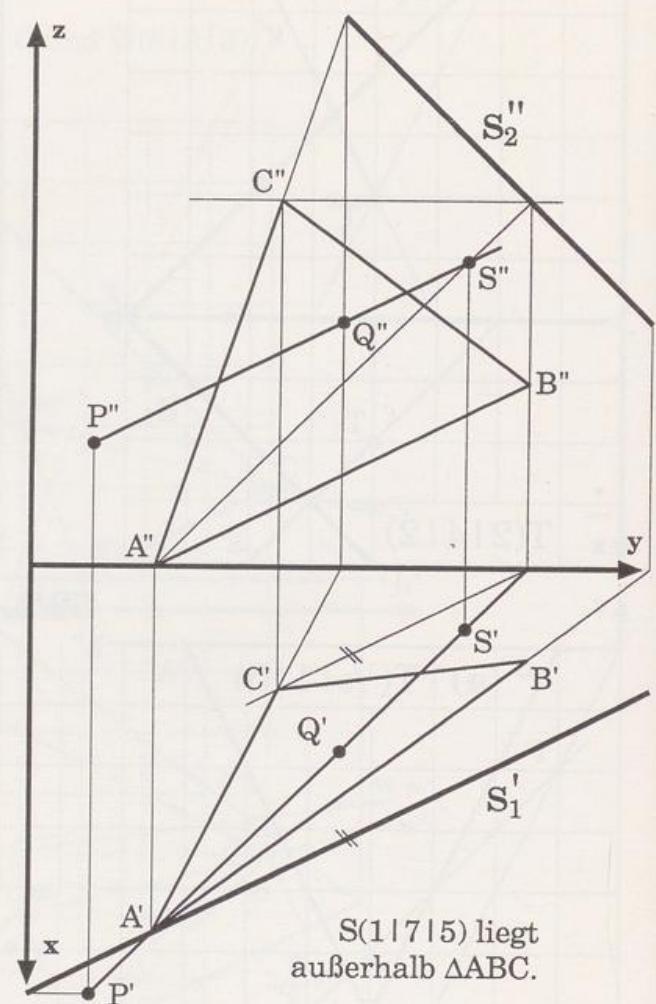
52/2.



52/3.

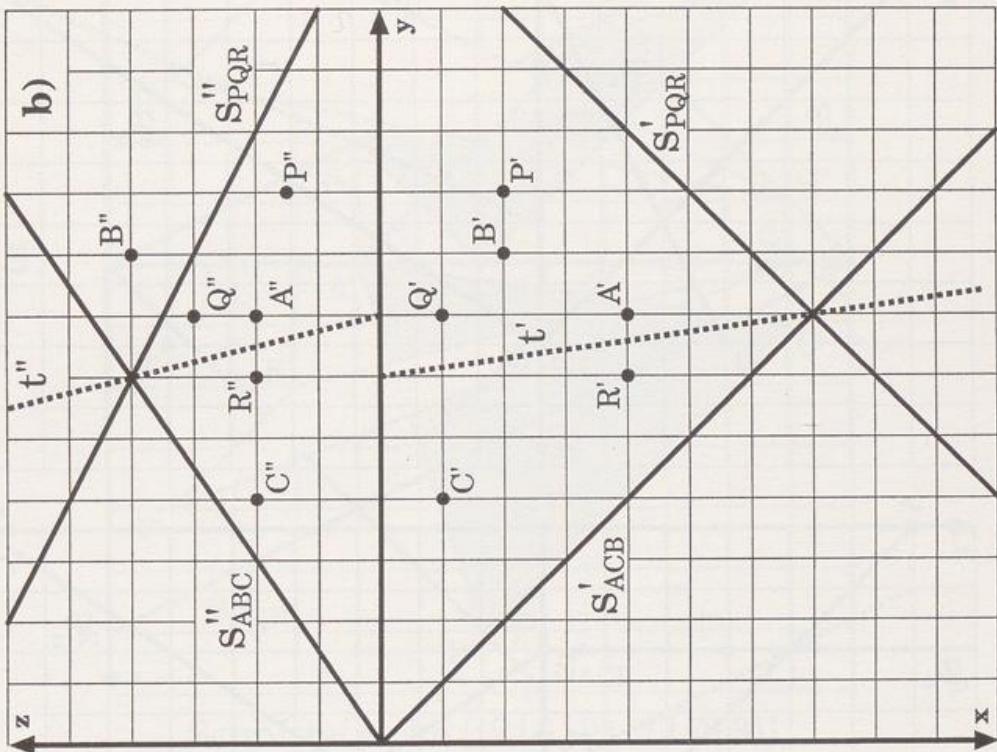


52/4.

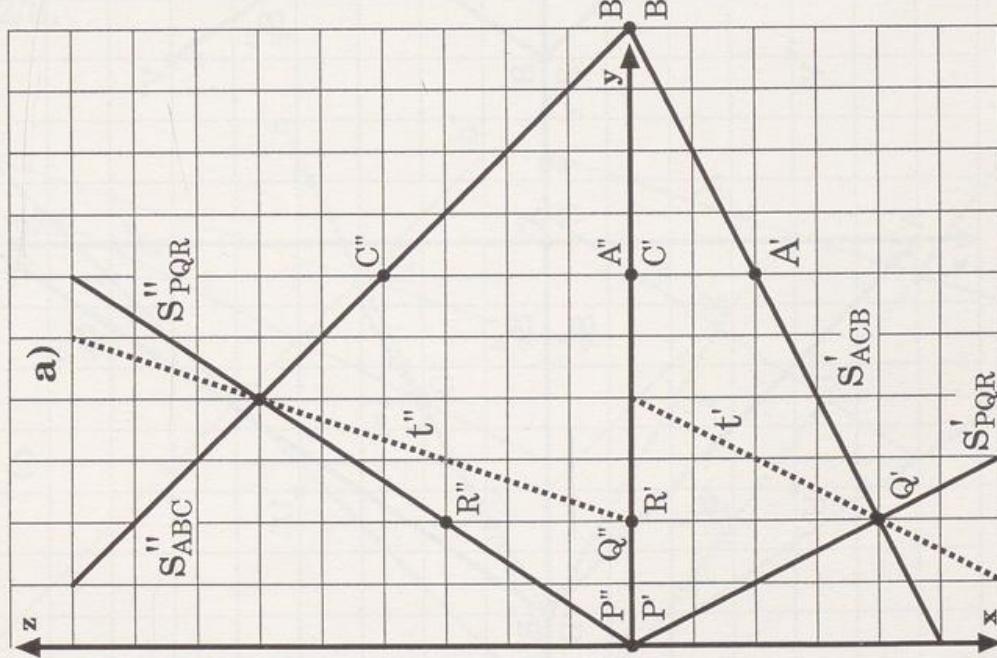


52/5.

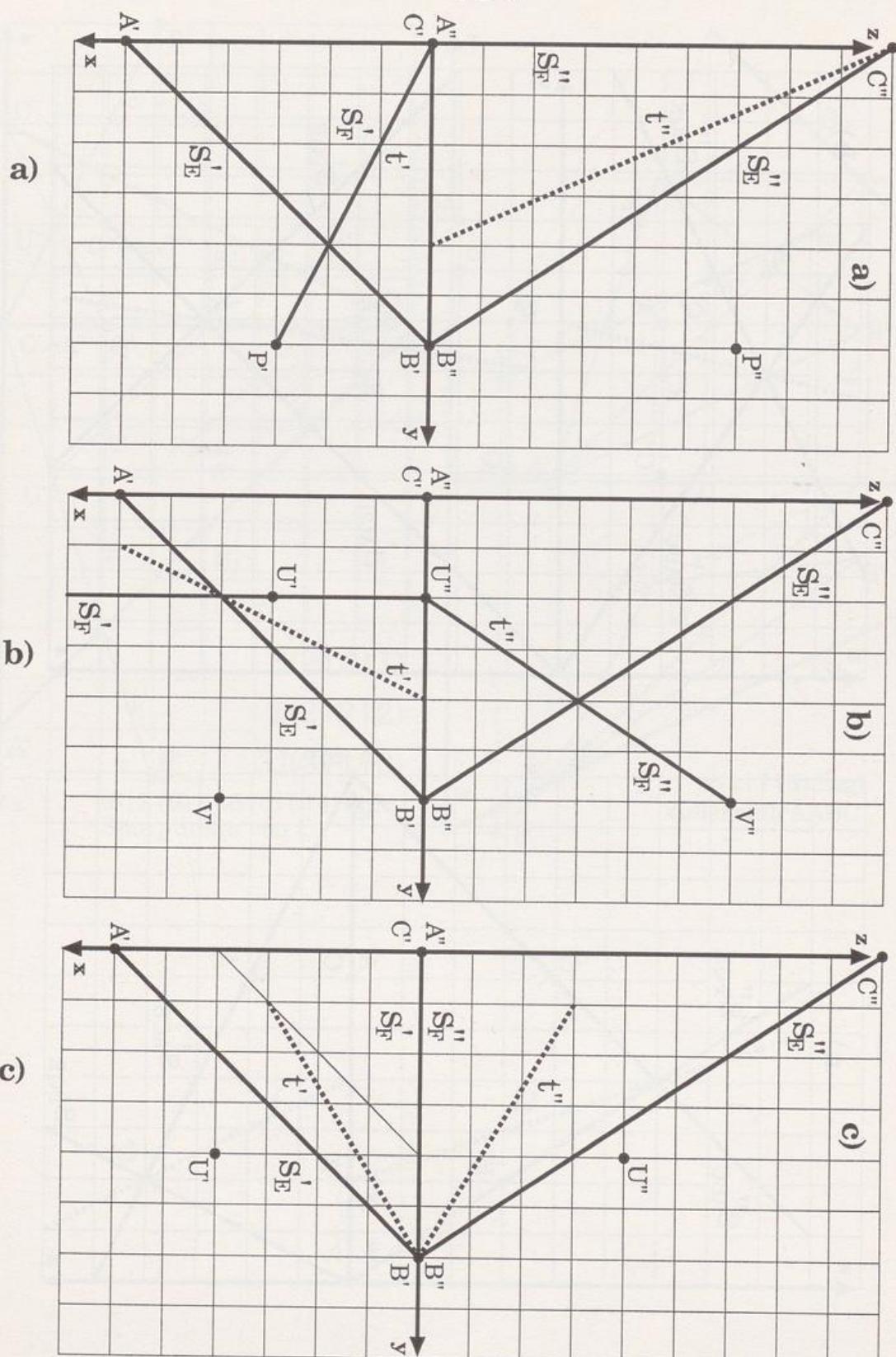
b)



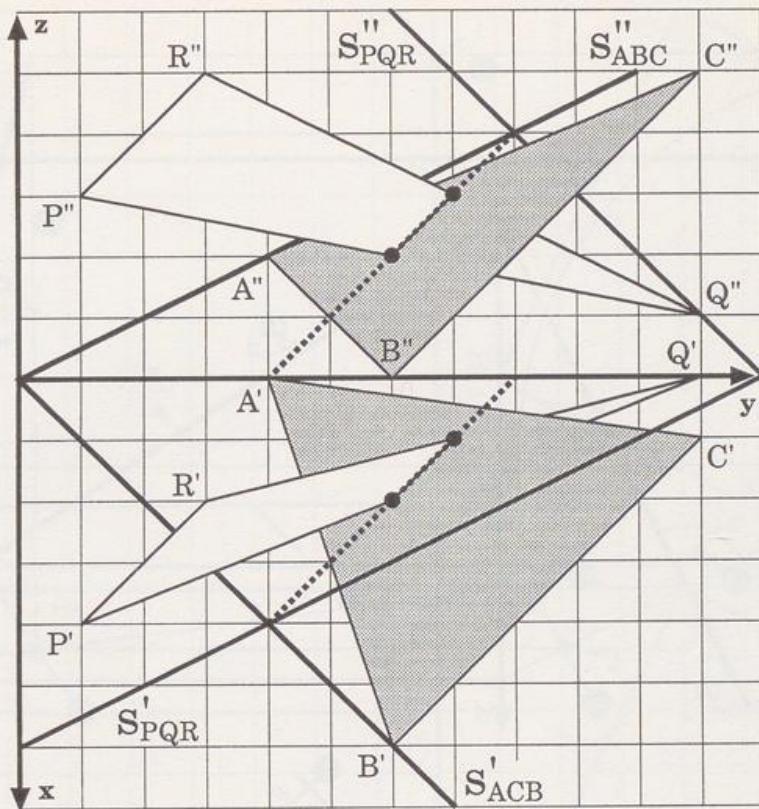
a)



52/6



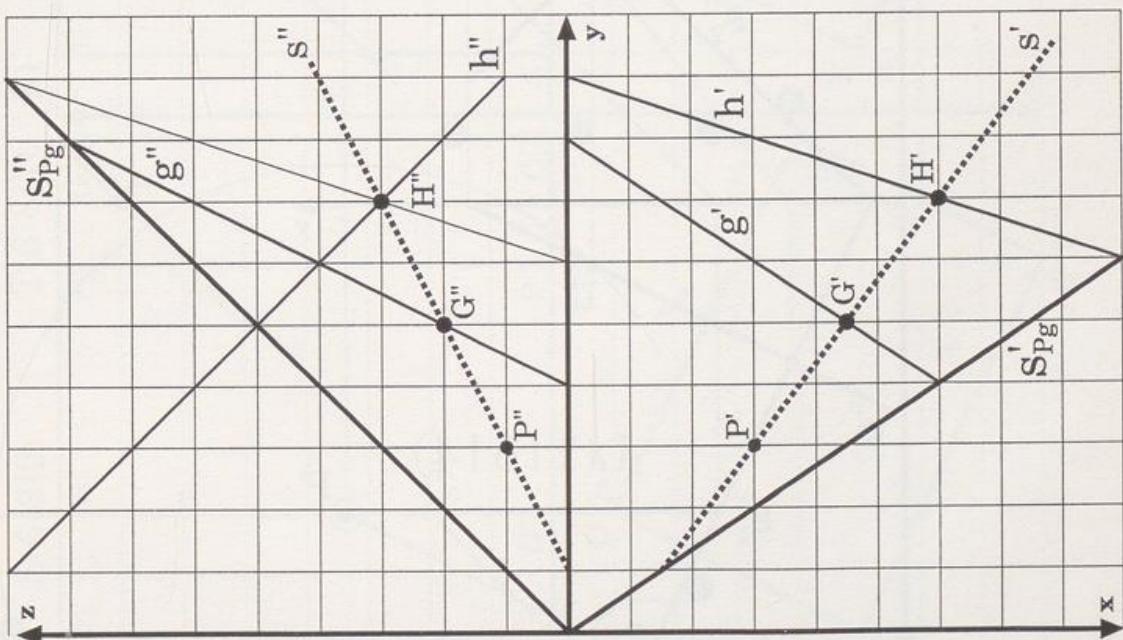
52/7.



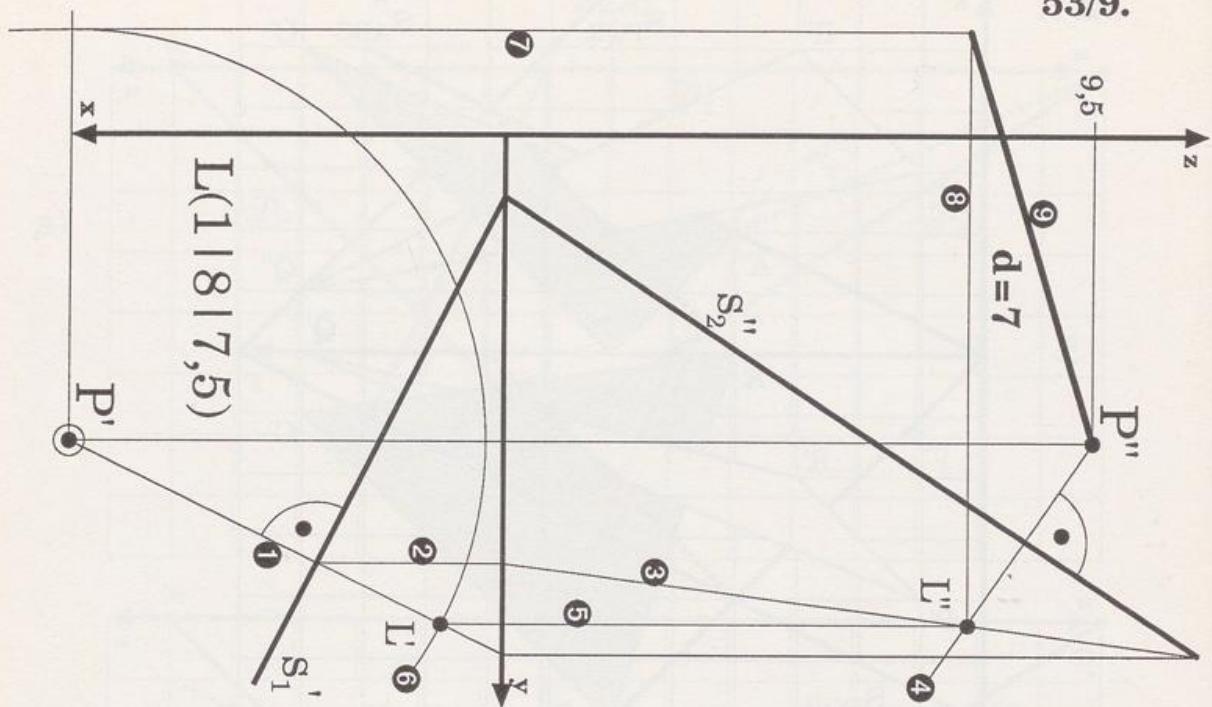
Schnittstrecke $[(2|6|2)(1|7|3)]$

52/8.

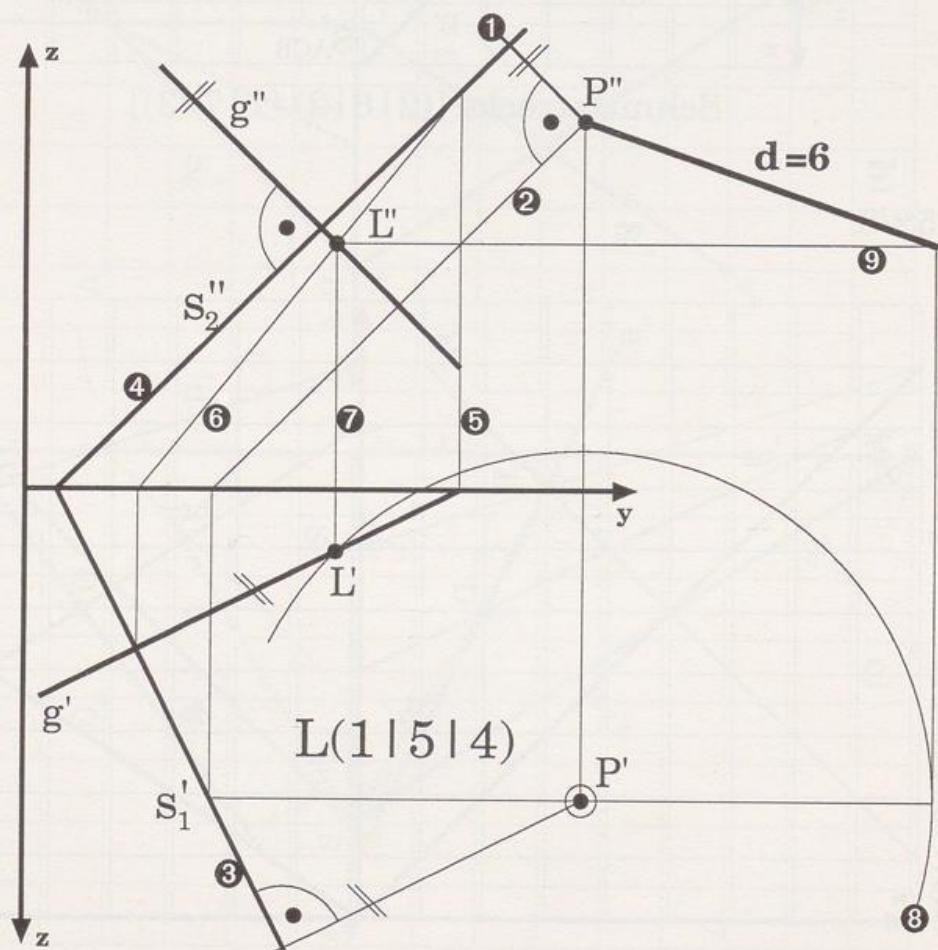
Schneide h mit der Ebene, die P und g enthält:
 $H(6|7|3)$. $PH = s$ schneidet g in $G(4,5|5|2)$.



53/9.



53/10.



a)

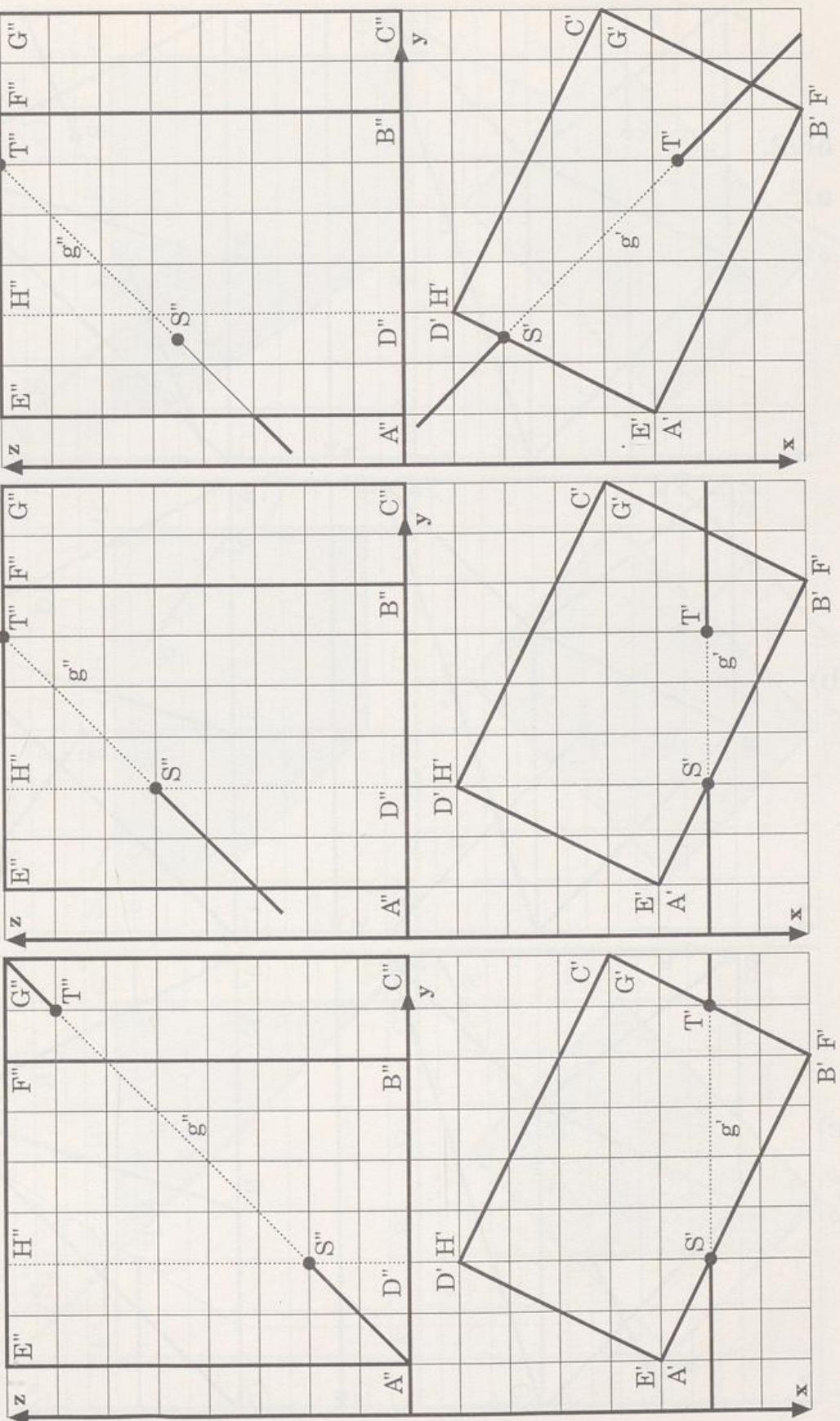
S(6|3|2)

T(6|8|7)

b) S(6|3|5)

c) S(2|2,5|4,5)

55/1.

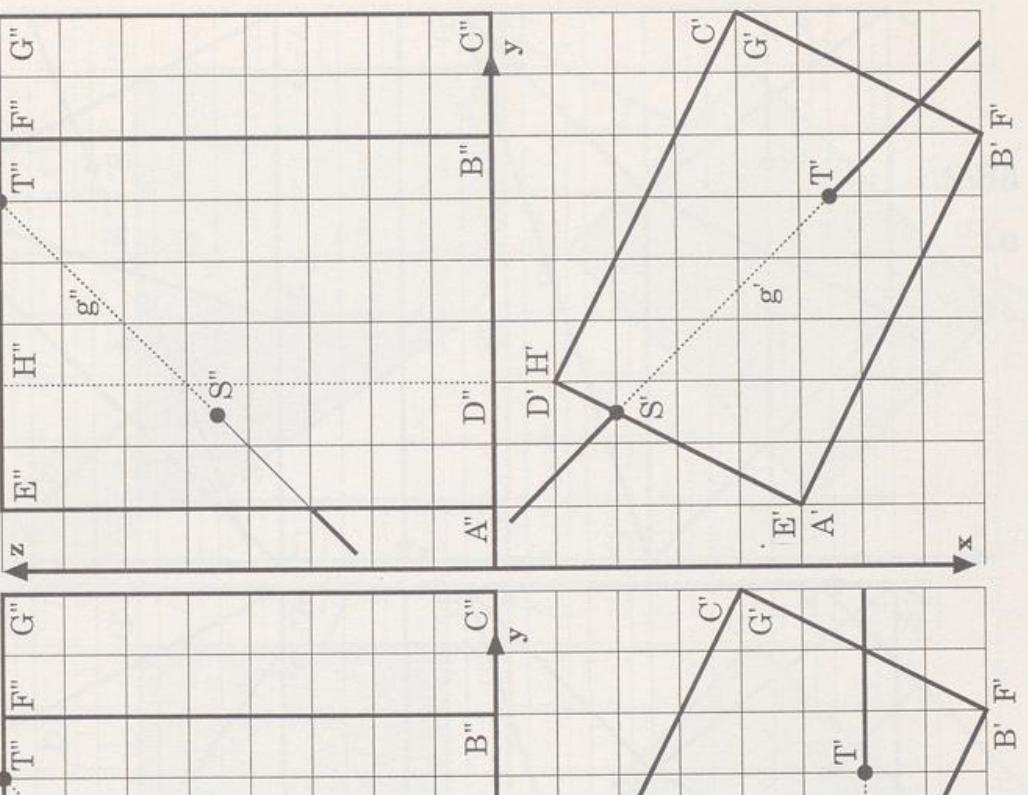


b)

T(5,5|6|8)

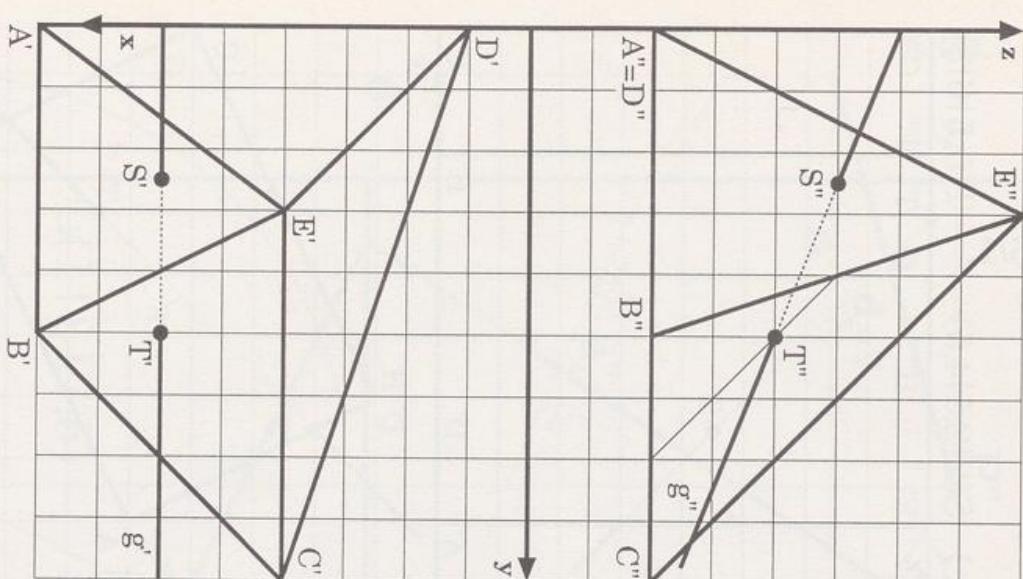
c)

55/1.



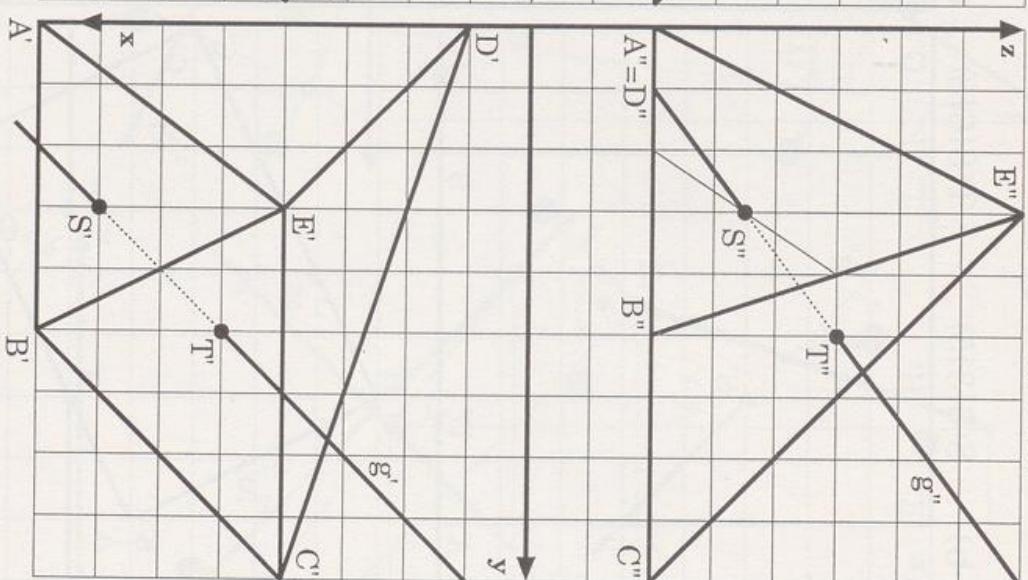
a) $S(6|2,5|5)$ $T(6|5|4)$

56/2.
a)



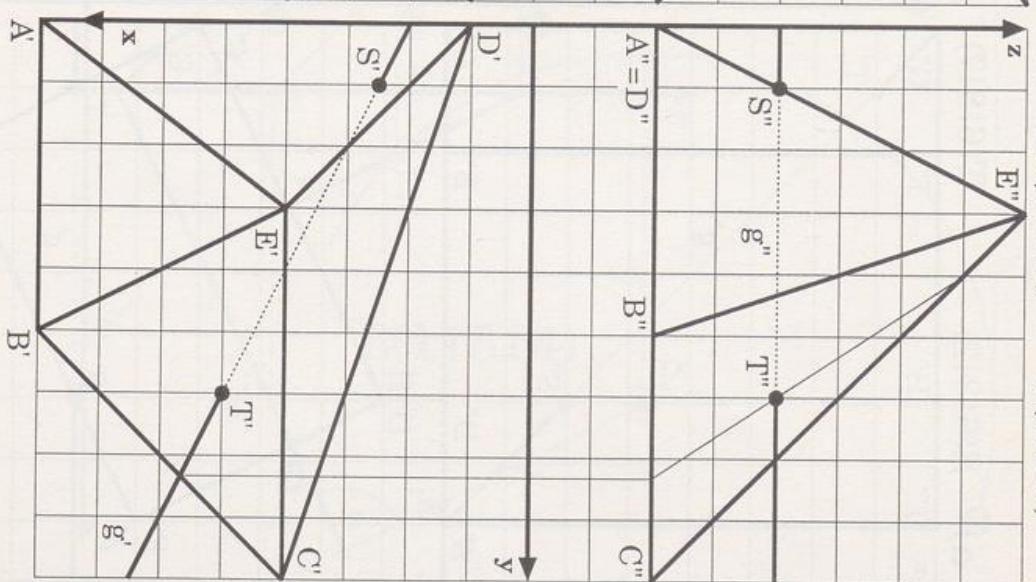
b) $S(7|3|3,5)$ $T(5|5|5)$

b)



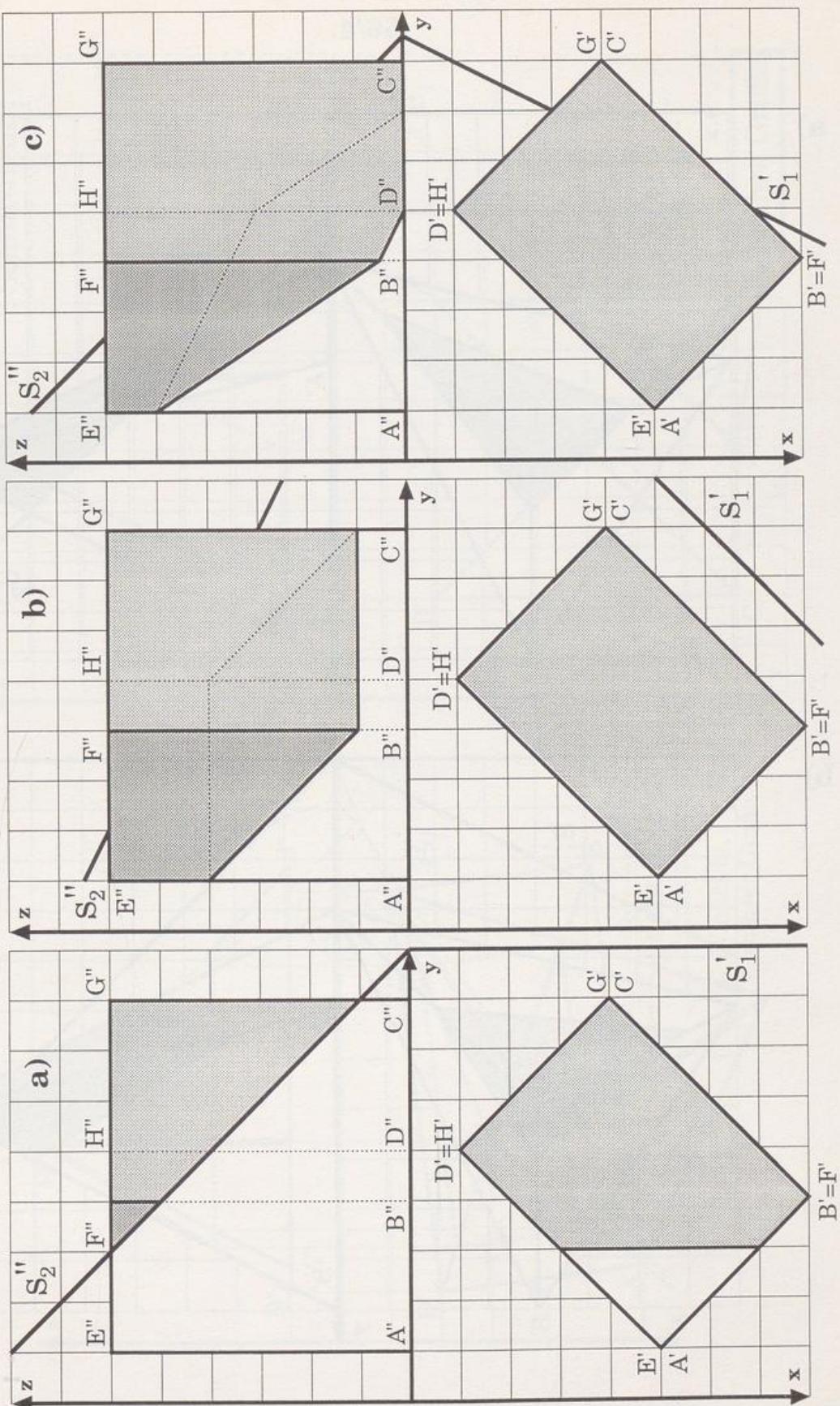
c) $S(2,5|1|2)$ $T(6|5|2)$

c)



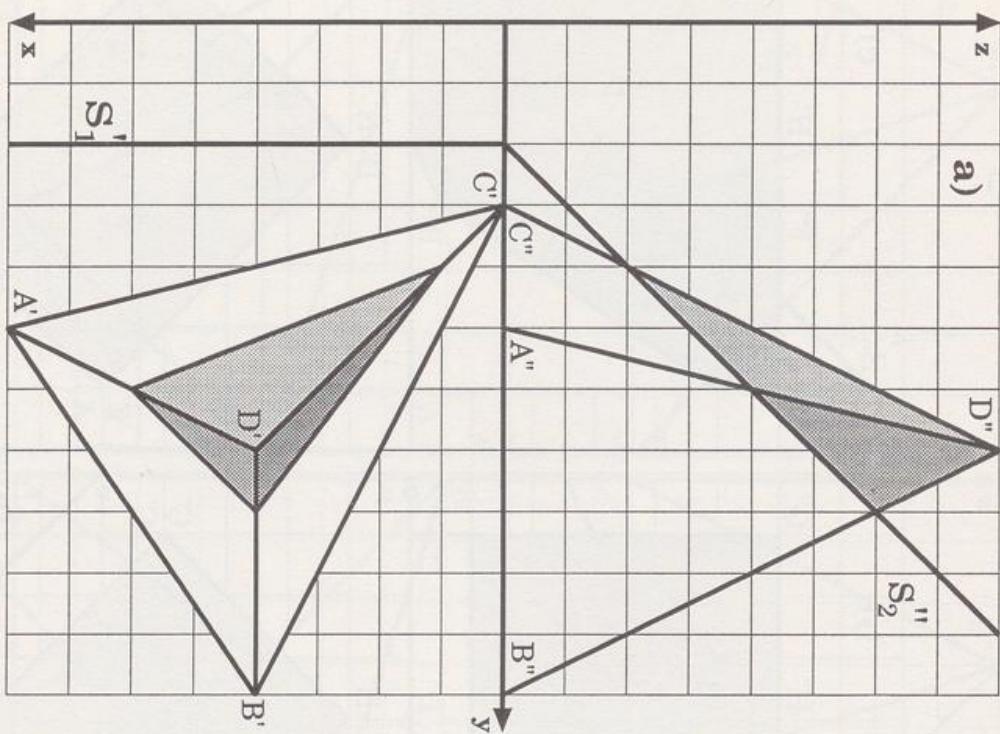
56/3.

c)

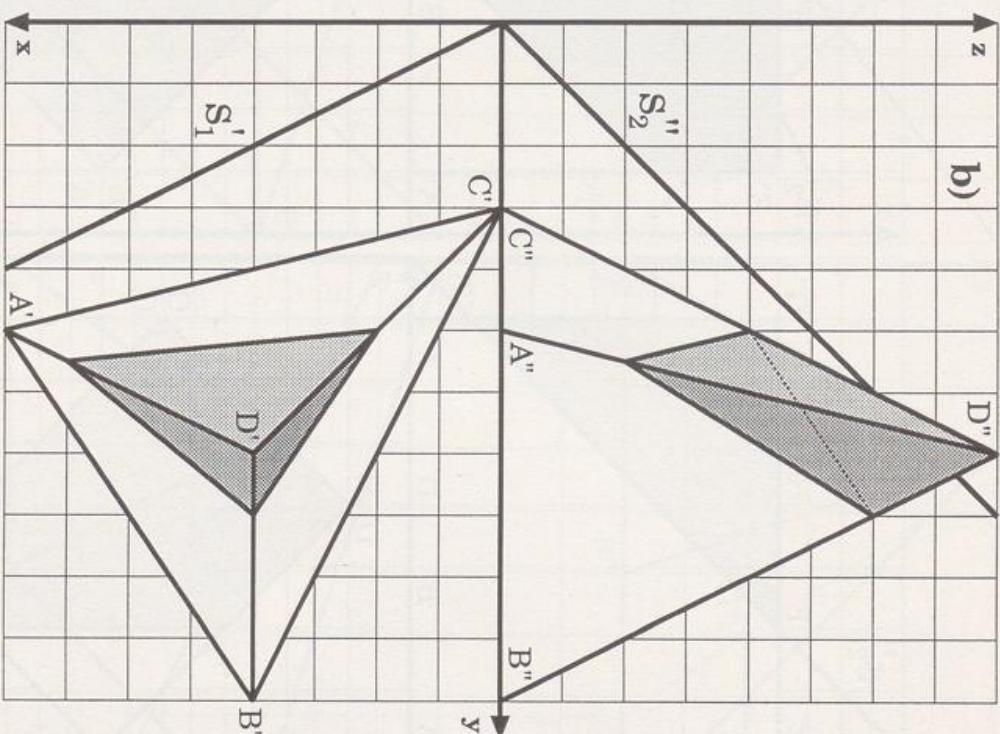


56/4.

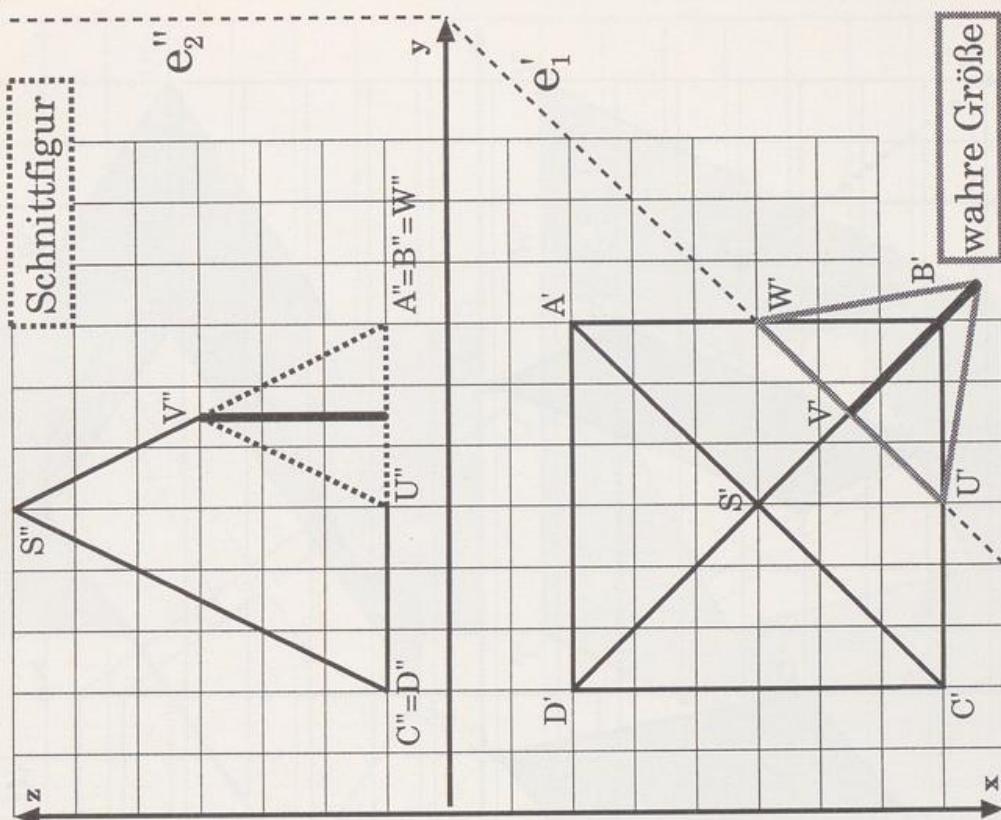
a)



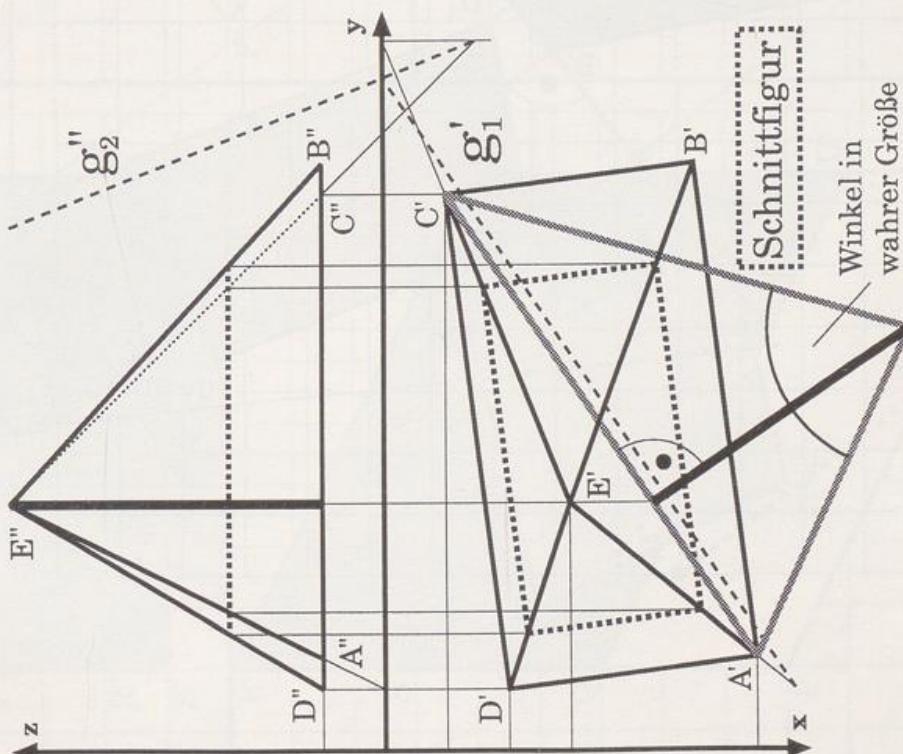
b)

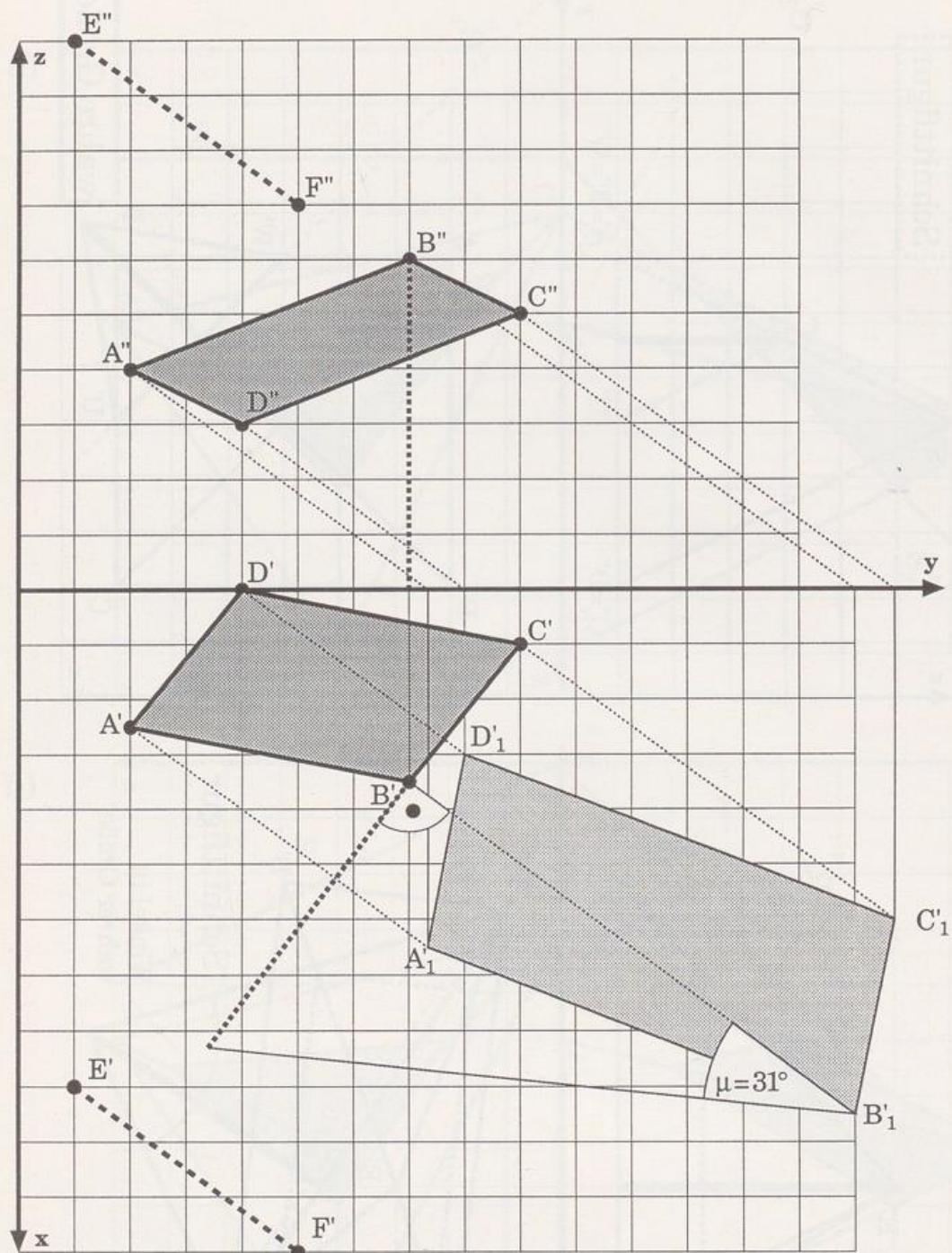


56/5.

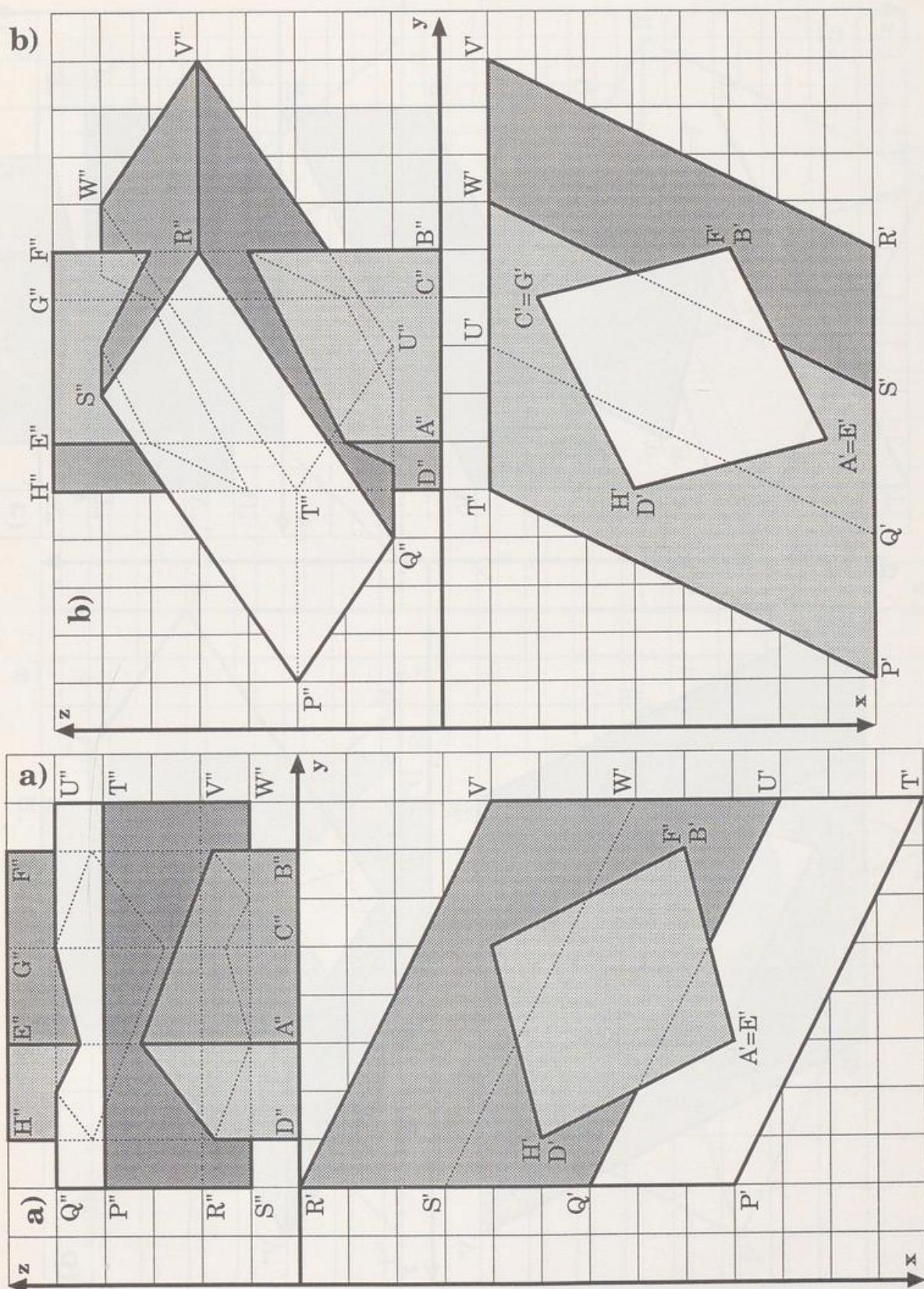


57/6.



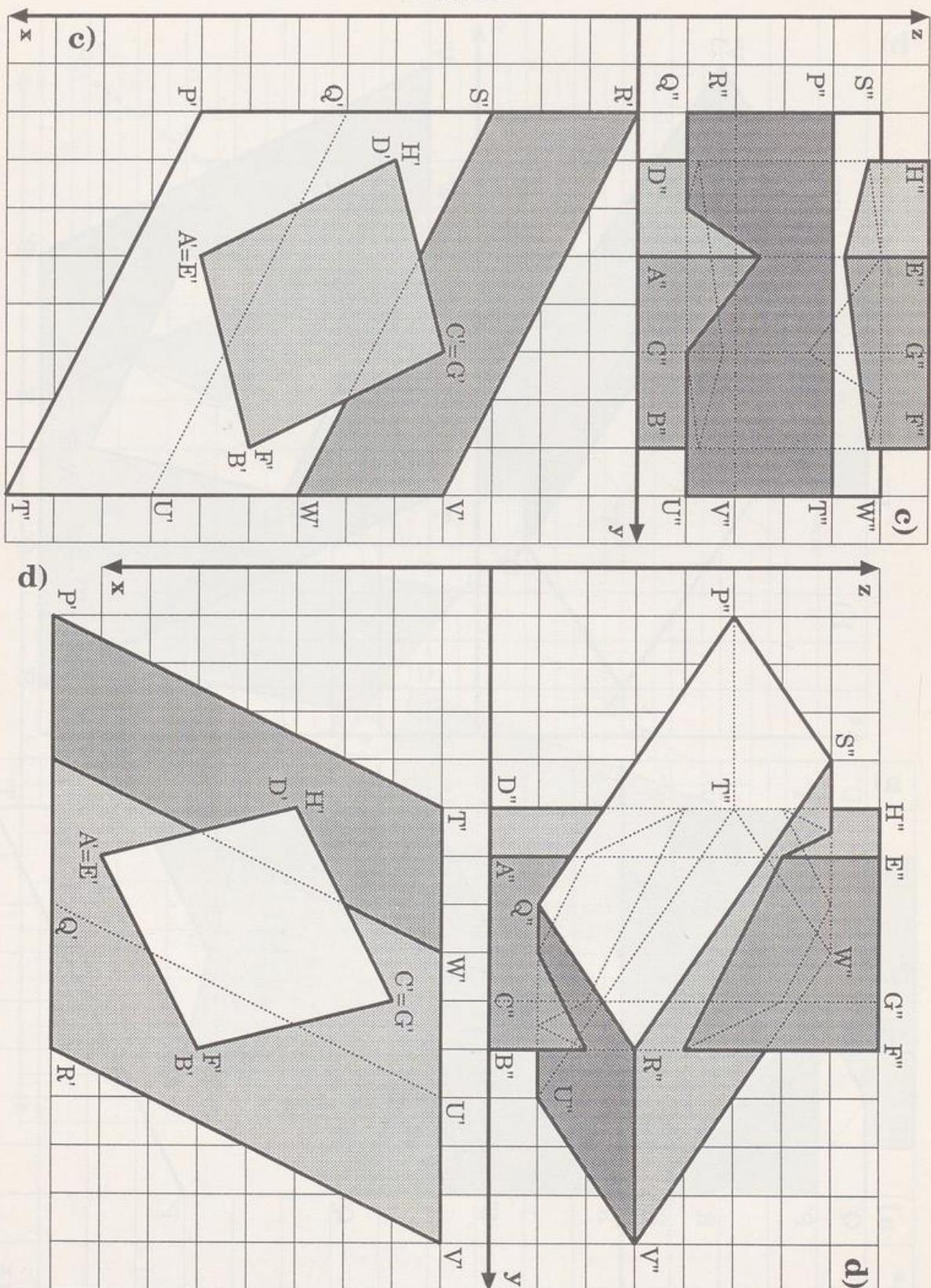


61/1.



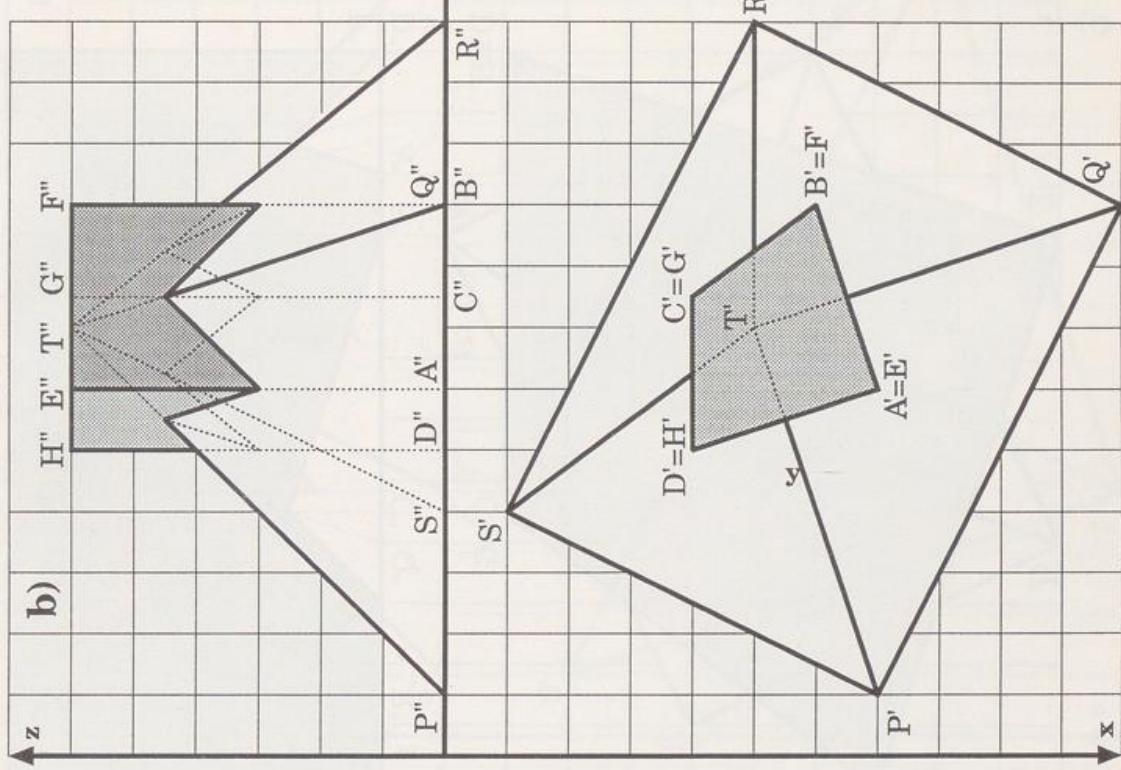
123

61/1.

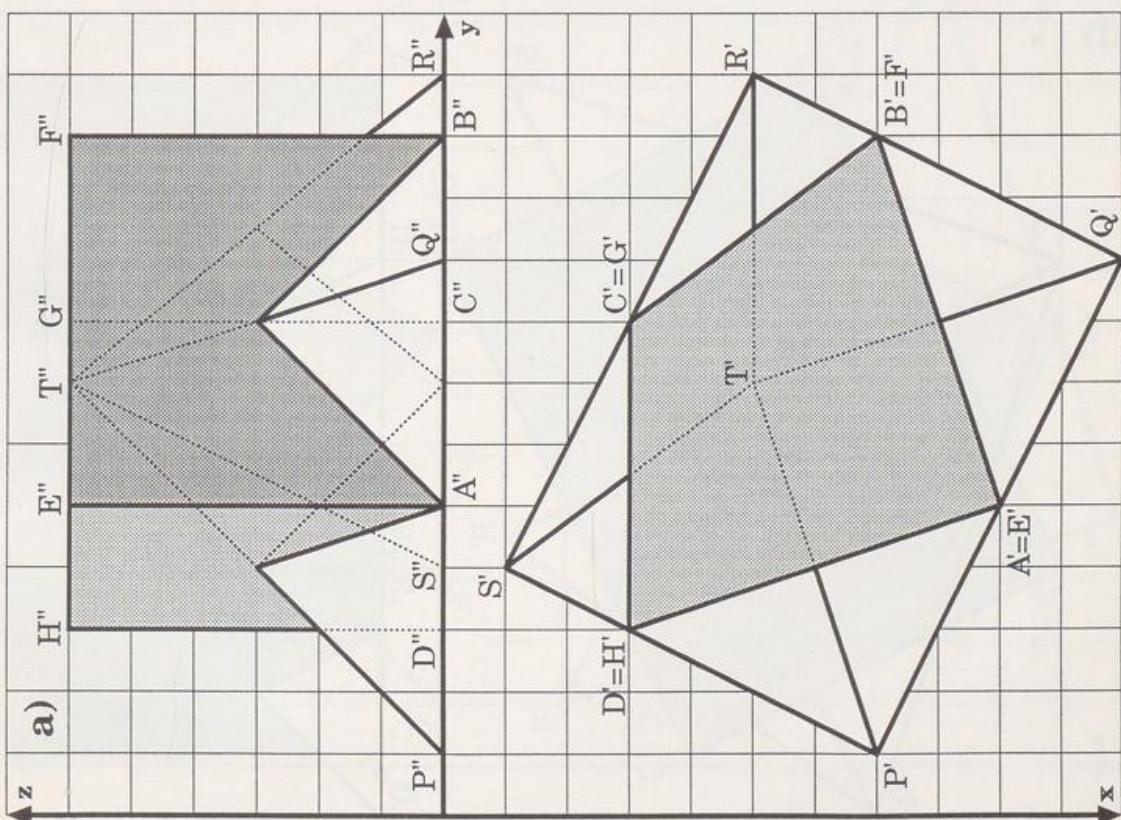


62/2.

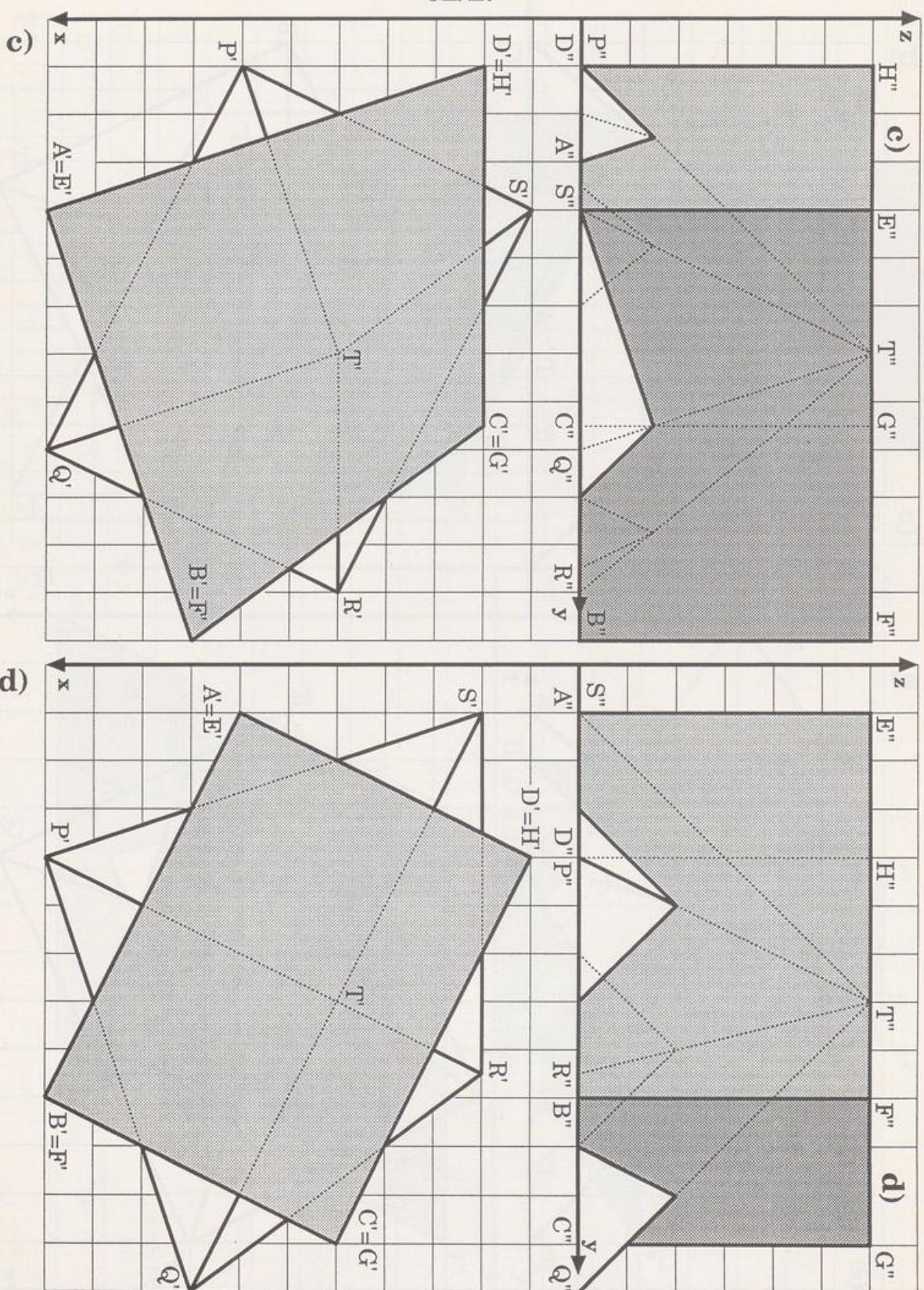
b)



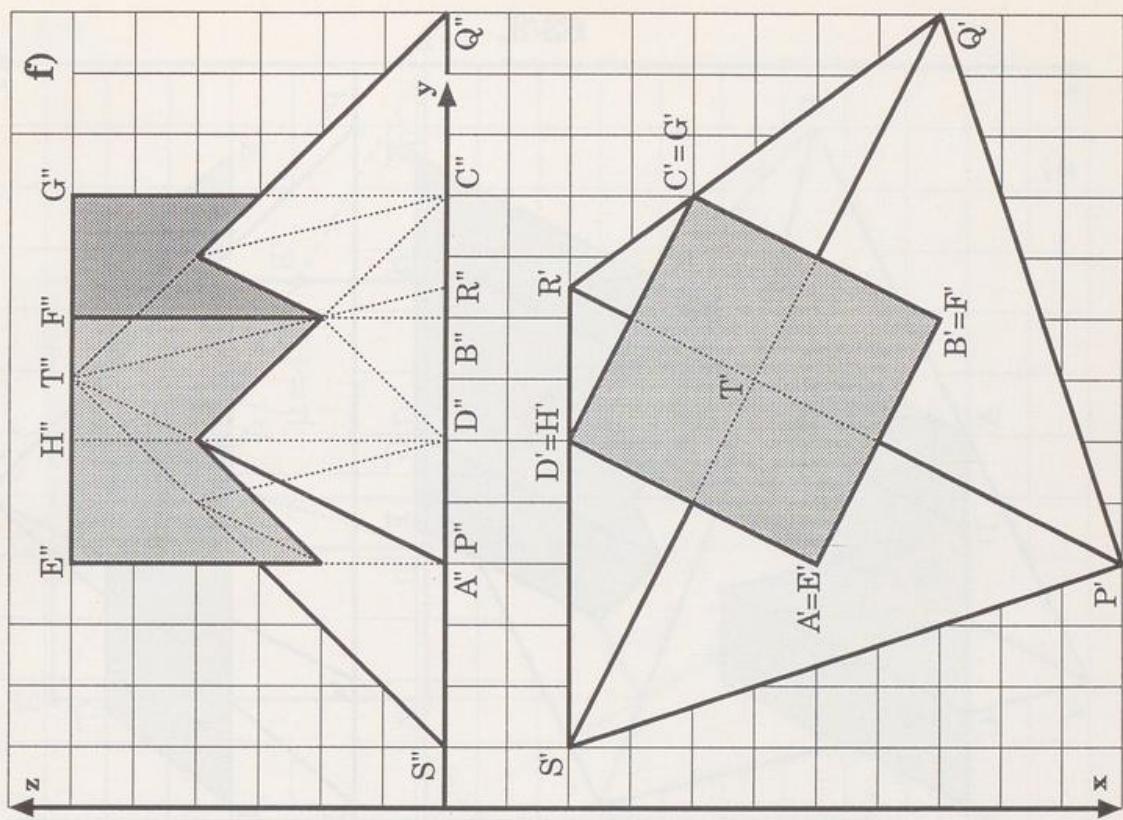
a)



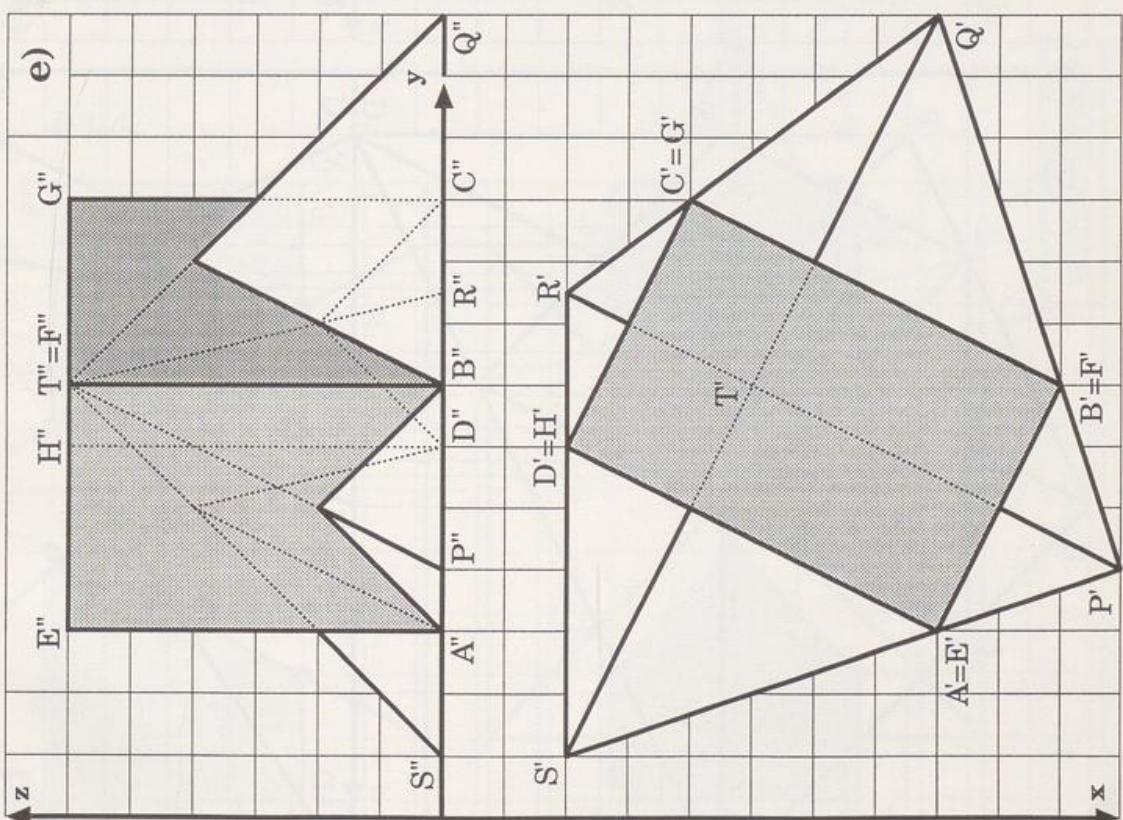
62/2.



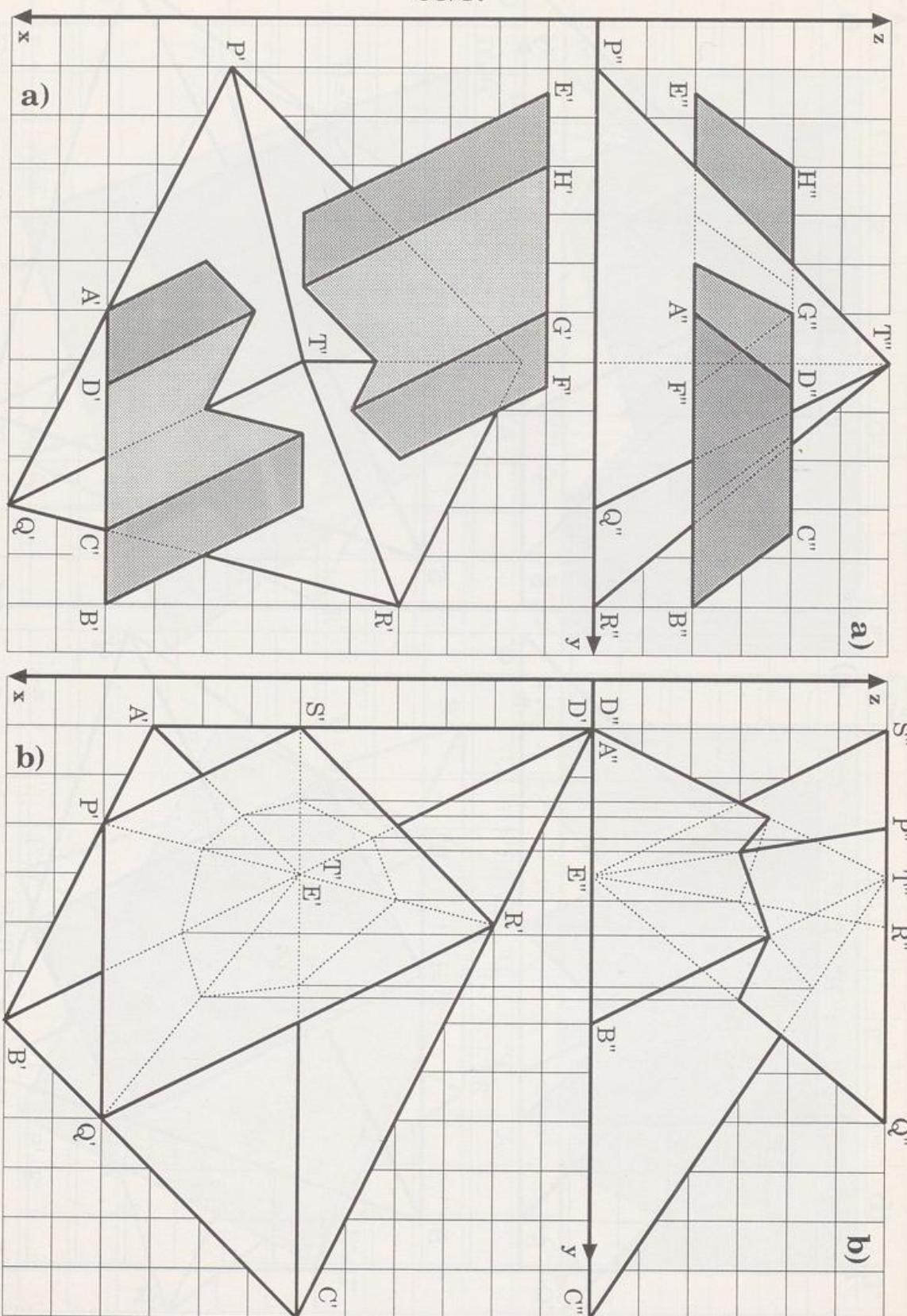
f



e

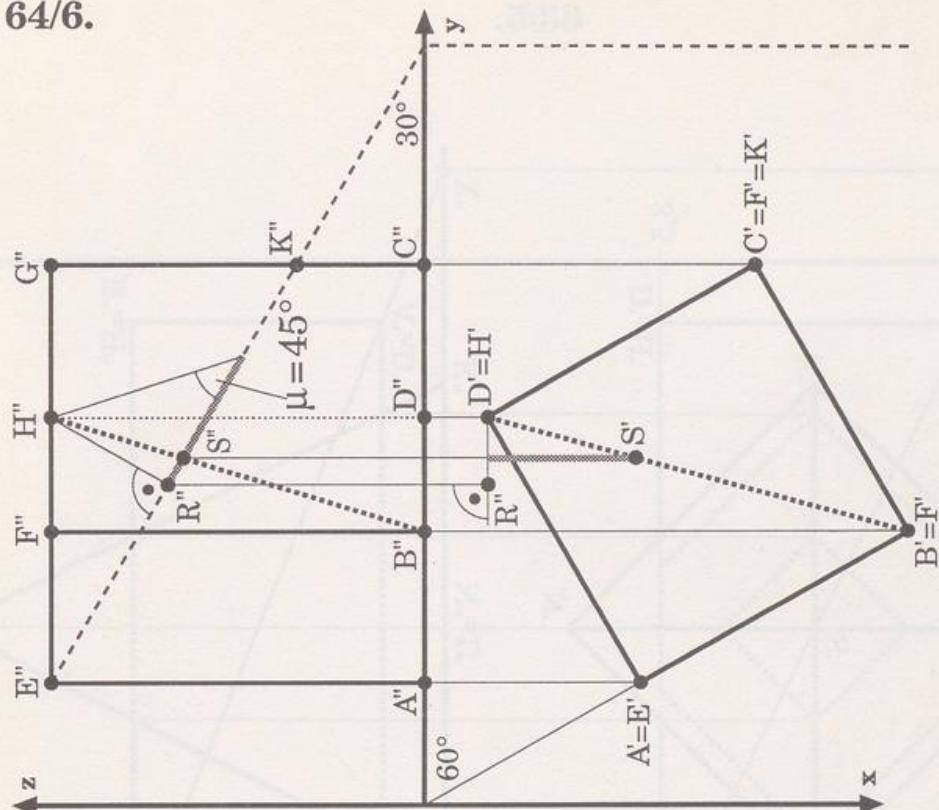


63/3.

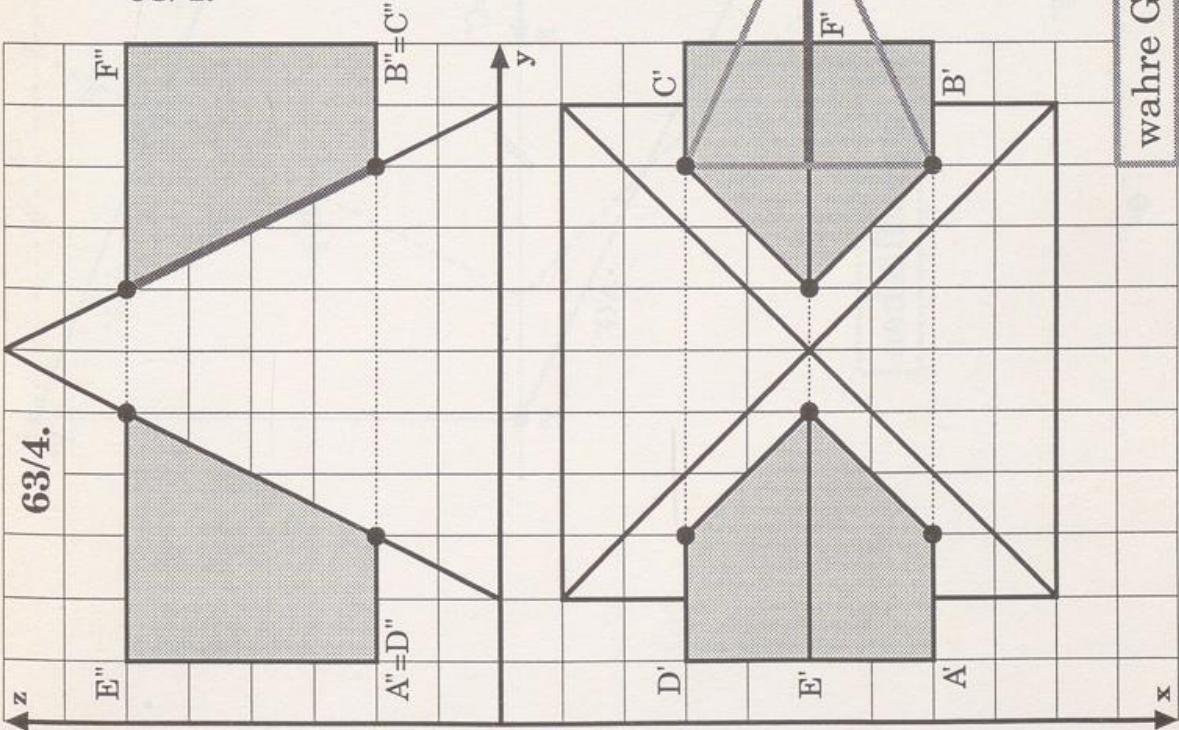


64/6.

64/6.



63/4.



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63/5.

