

**POSSIBLE ANSWERS FOR /
MOONTLIKE ANTWOORDE VIR :**

**TECHNICAL DRAWING HG
TEGNIесе TEKENE HG**

**PAPER 1
VRAESTEL 1**

711-1/1

QUESTION 1

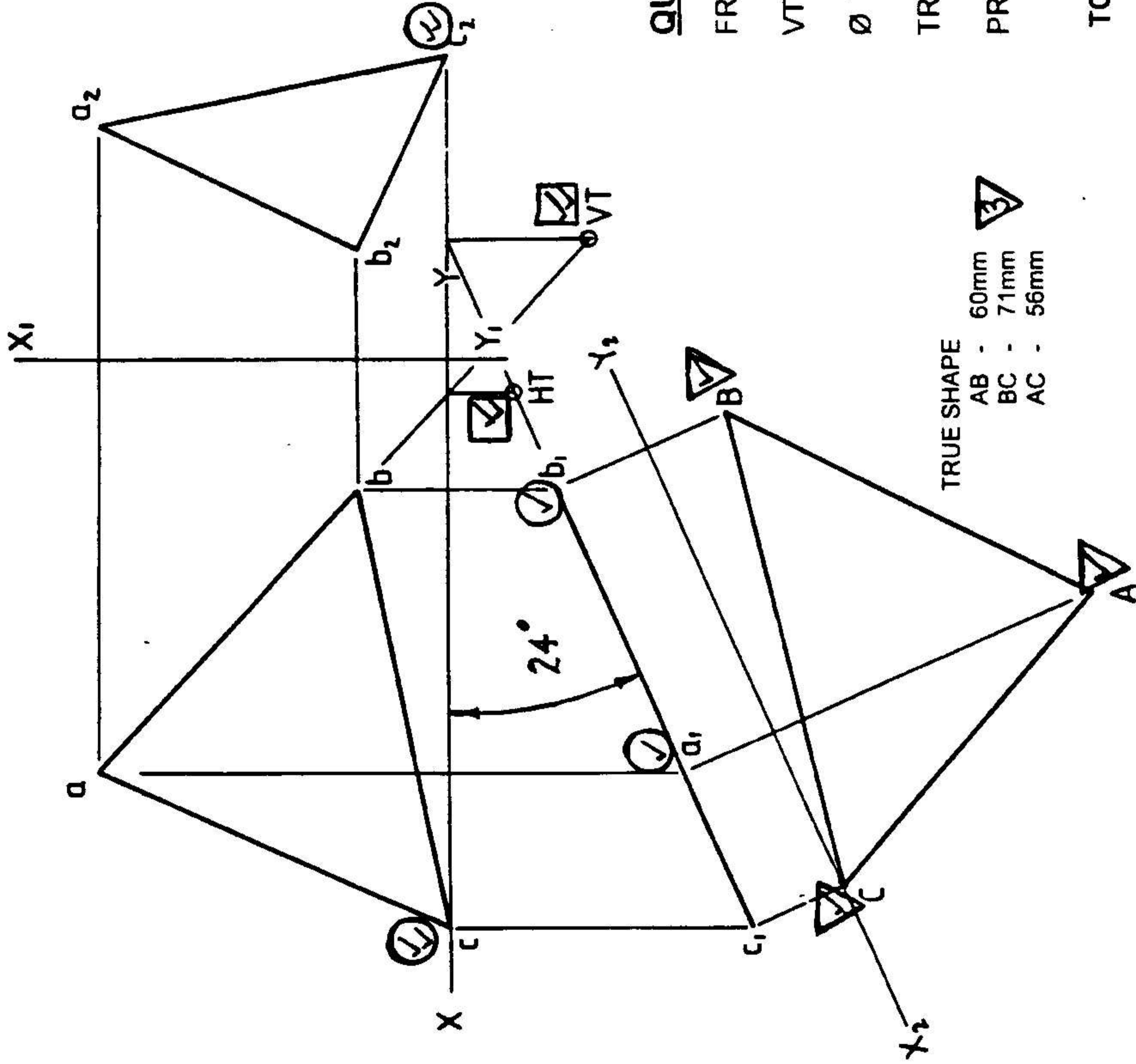
Figure 1 shows the front view and left view of line segment AB and the top view of point C which all forms part of plane figure ABC. If point C lies on the HP, determine the following :

- 1.1 The front view, left view, and top view of plane figure ABC. 6
 - 1.2 The vertical trace (VT) and horizontal trace (HT) of line segment AB. Indicate the traces clearly on your drawing. 4
 - 1.3 The angle of inclination of plane figure ABC to the VP 2
 - 1.4 The true shape of plane figure ABC. 6
- PRESENTATION** 2
- TABULATE YOUR ANSWERS NEATLY.** 20

VRAAG 1

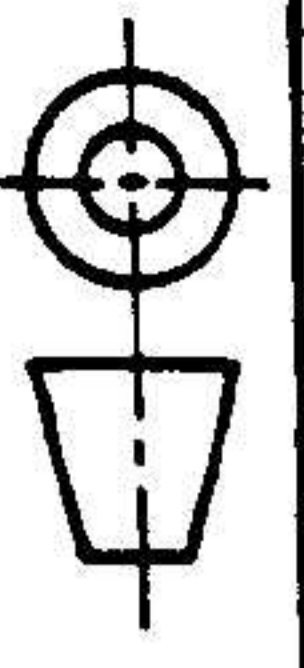
Figuur 1 toon die vooraansig en linkeraansig van lynstuk AB asook die boaansig van punt C wat alles deel vorm van vlakfiguur ABC. Bepaal die volgende indien punt C op die HV lê :

- 1.1 Die vooraansig, linkeraansig en boaansig van vlakfiguur ABC. 6
 - 1.2 Die vertikale snyspoor (VS) en horisontale snyspoor (HS) van lynstuk AB. Dui die sny-spore duidelik aan op jou tekening. 4
 - 1.3 Die helling van vlakfiguur ABC ten opsigte van die VV. 2
 - 1.4 Die ware vorm van vlakfiguur ABC. 6
- AANBIEDING** 2
- BEANTWOORD NETJIES IN TABELVORM.** 20



QUESTION 1

FRONT, LEFT, TOP VIEW	6
VT, HT	4
Ø TO VP	2
TRUE SHAPE	6
PRESENTATION	2
TOTAL	20



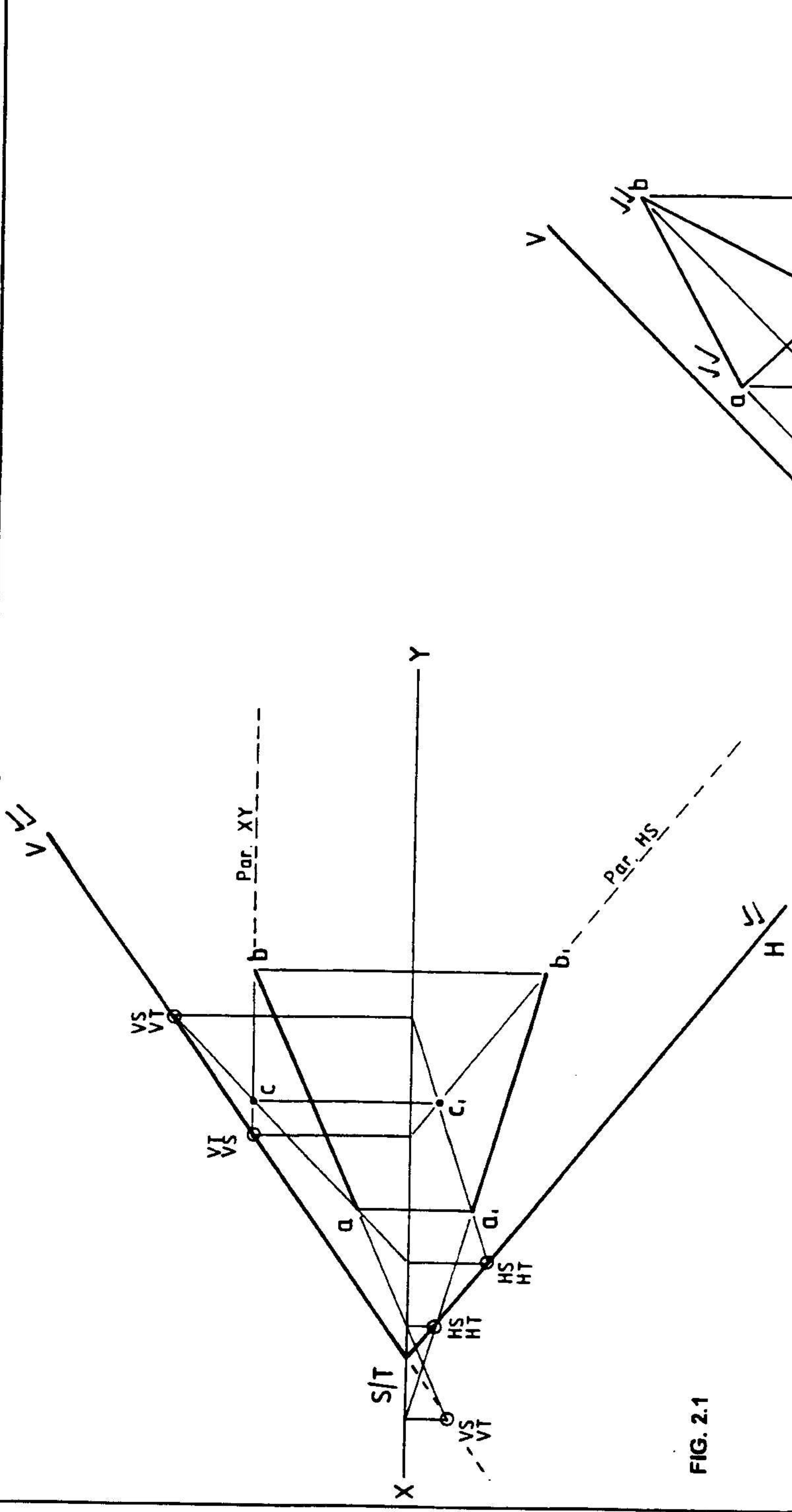


FIG. 2.1

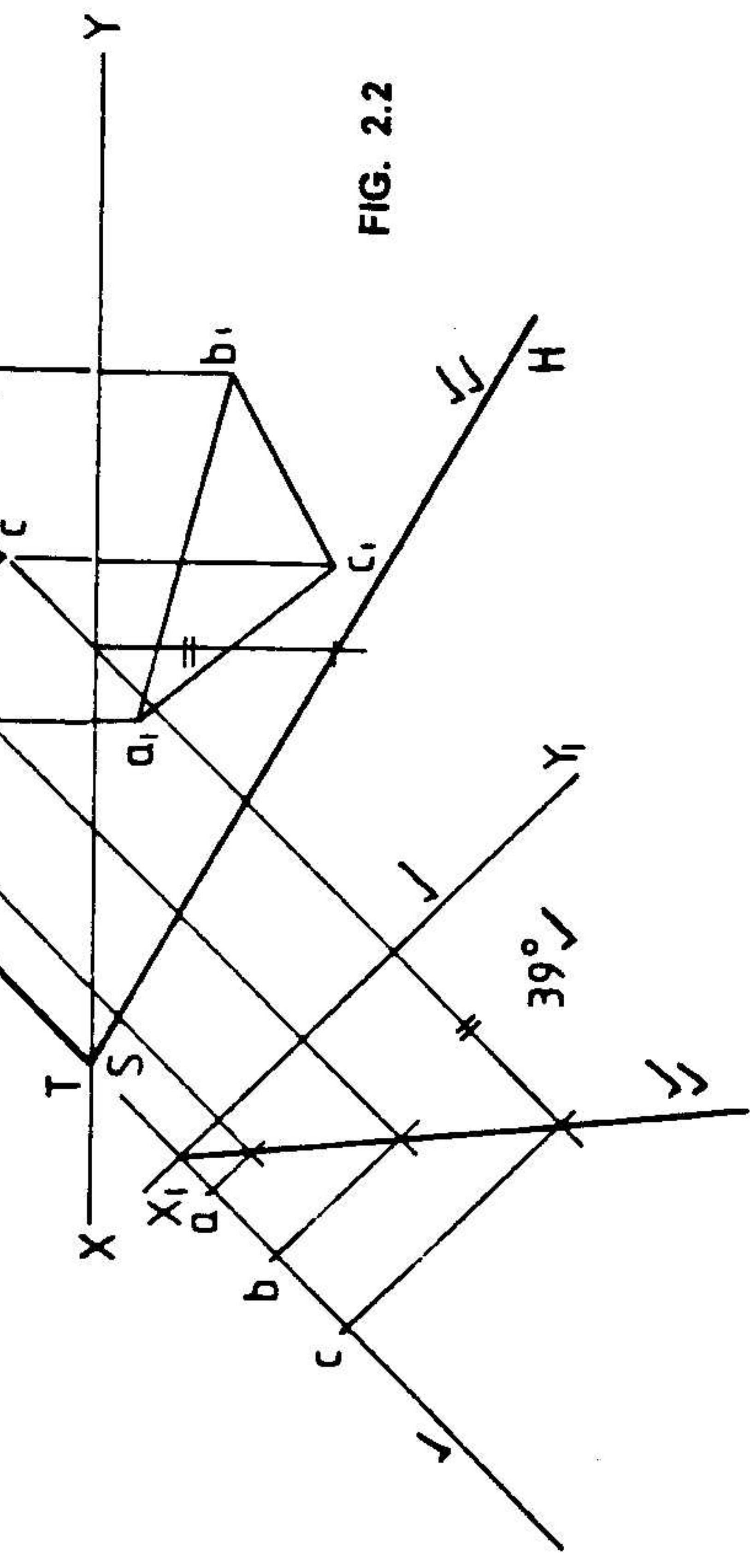
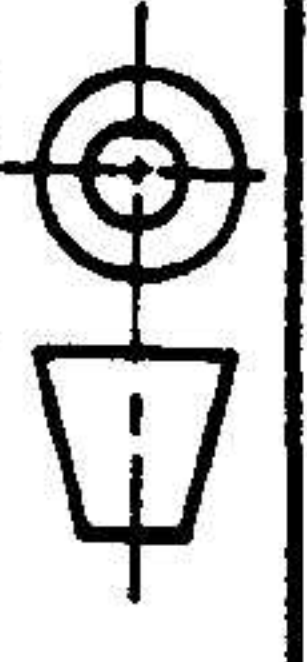


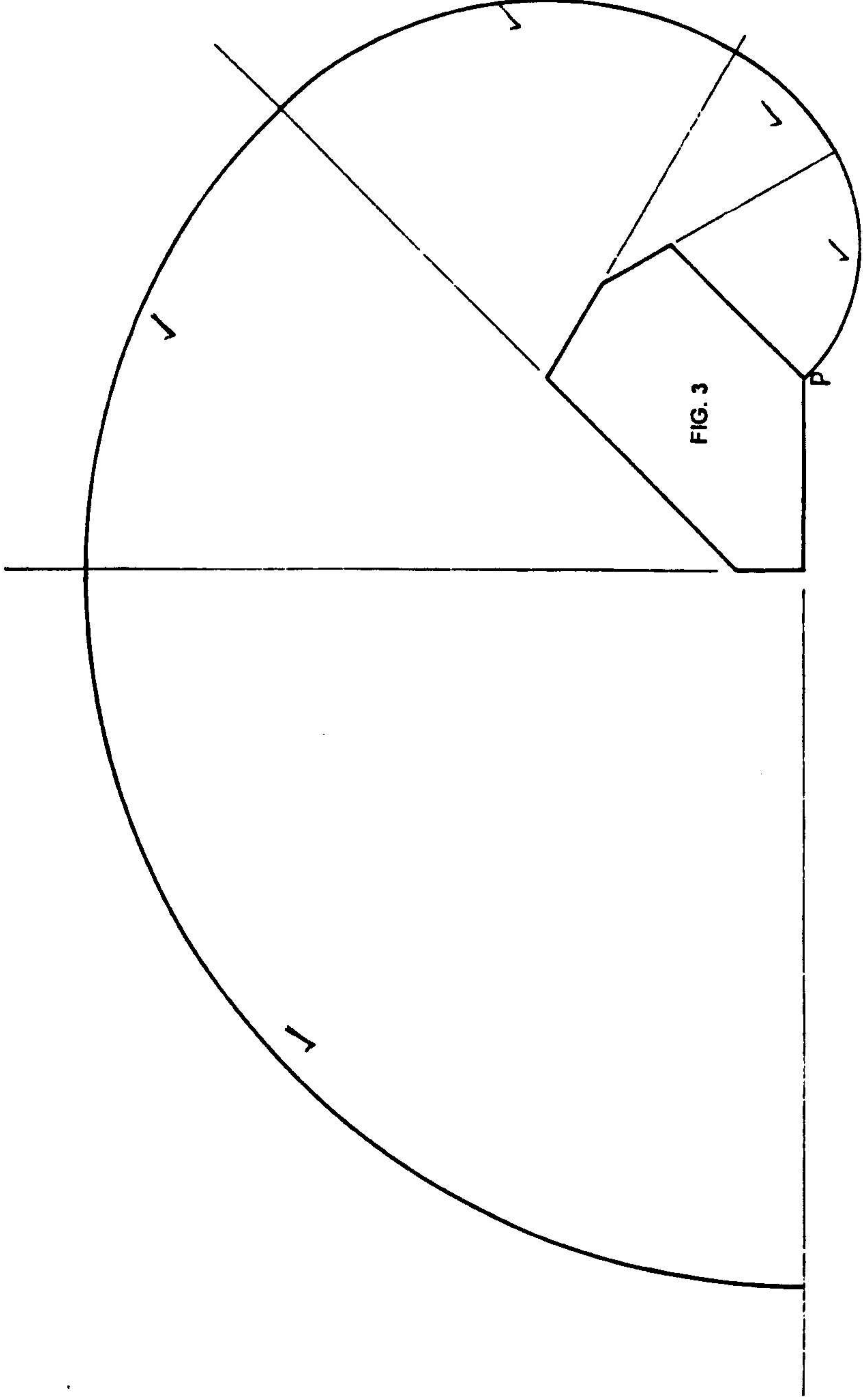
FIG. 2.2

QUESTION 2		43	
Figure 2.1 shows two views of point C and line segment AB, both lying in the same oblique plane. Determine :			
2.1.1	The traces of the oblique plane and indicate it with VTH.	10	
Figure 2.2 shows the vertical trace (VT) of an oblique plane VTH and the top view of plane figure ABC which lies in this oblique plane. Determine :			
2.2.1	The horizontal trace (HT) of the oblique plane. The true angle of inclination to the VP = 39°.	7	
2.2.2	The front view of plane figure ABC.	6	
PRESENTATION		2	
		25	
VRAAG 2		43	
Figuur 2.1 toon twee aansigte van punt C en lynstuk AB, wat albei in dieselfde skuinsvlak lê. Bepaal			
2.1.1	die snypore van die skuinsvlak en dui aan met VSH.	10	
Figuur 2.2 toon die vertikale snypoor (VS) van 'n skuinsvlak VSH asook die boeaansig van vlakfiguur ABC wat in die skuinsvlak lê. Bepaal			
2.2.1	die horisontale snypoor (HS) van die skuinsvlak. Die ware helling ten opsigte van die VV = 39°.	7	
2.2.2	die vooraansig van vlakfiguur ABC.	6	
AANBIEDING		2	
		25	

QUESTION 2

2.1	METHOD	6
	VTH	4
2.2	VT	7
	FRONT VIEW	6
	PRESENTATION	2
TOTAL		25

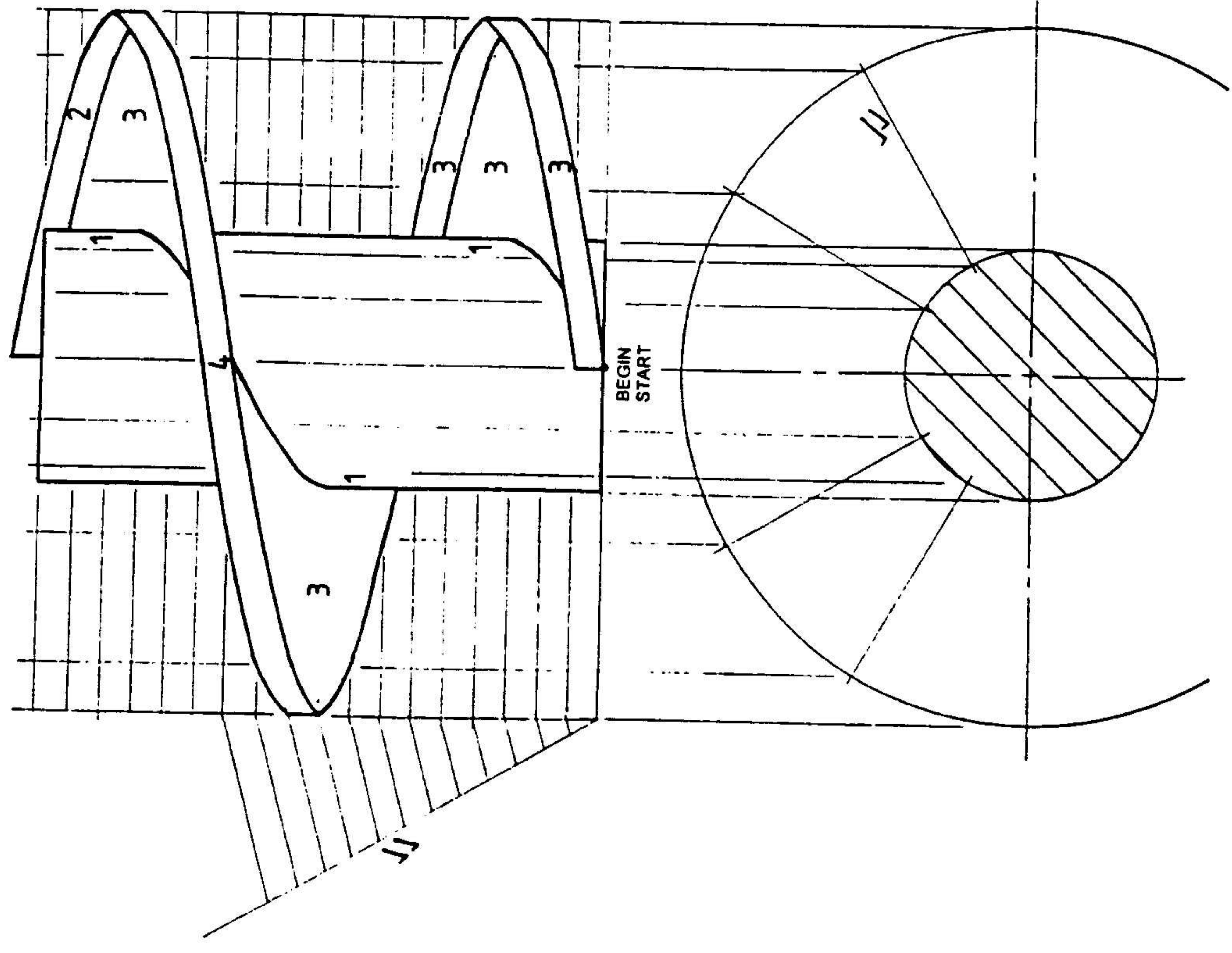




QUESTION 3

LOCUS	5	3.2 INVOLUTE	✓✓
NAME	2	3.3 167mm	✓
LENGTH OF STRING	2		
PRESENTATION	1		
TOTAL	10		

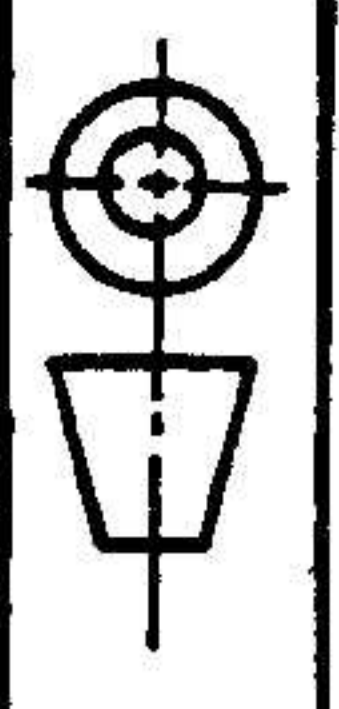
QUESTION 3		
Figure 3 shows an irregular hexagonal plane figure. A piece of string tied at point P, is unrolled from the plane figure in the direction of the arrow.		
Determine.		
3.1 The locus formed by the end of the string	5	
3.2 Name the locus formed	2	
3.3 The length of the string	2	
PRESENTATION	1	
	10	
VRAAG 3		44
Figuur 3 toon 'n onreëlmatige seshoekige vlakfiguur. 'n Touthie wat by punt P aan die vlakfiguur vasgemaak is, word afgerol in die rigting van die pyl.		
Bepaal :		
3.1 Die lokus gevorm deur die eindpunt van die touthie	5	
3.2 Die naam van die lokus wat gevorm word.	2	
3.3 Die lengte van die touthie	2	
AANBIEDING	1	
	10	

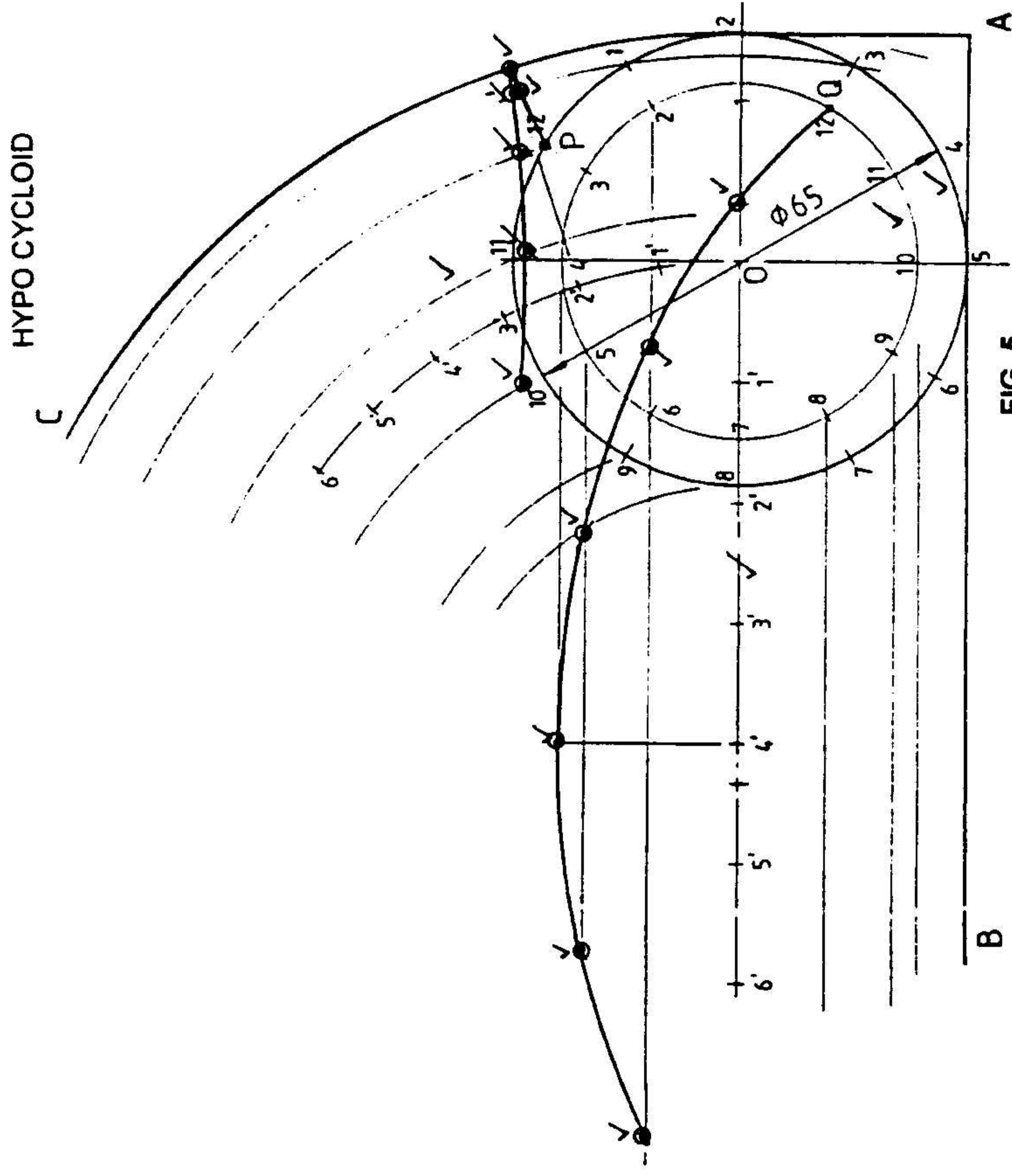


QUESTION 4	
CHUTE	28
PRESENTATION	2
TOTAL	30

QUESTION 4 Figure 4 shows the top view and starting position of a helical chute formed around a steel pillar. The right handed chute with pitch 60mm must be drawn for one and a half turns. The height of the outside edge must be 5mm. Show all constructions. No hidden detail is required.	28	
	2	
	30	
PRESENTATION Determine the front view of the chute.		
VRAAG 4 Figuur 4 toon die boaansig en beginposisie van 'n hellese glybaan wat rondom 'n staalplaaar gevorm word. Die regterhandse glybaan met 'n steek van 60mm moet vir een-en-'n-halfwe omwenteling geteken word. Die hoogte van die buiterant moet 5mm wees. Toon alle konstruksies. Geen verborge detail moet getoon word nie.	28	
	2	
	30	
AANBIEDING Bepaal die vooraansig van die glybaan.		
		45

FIG. 4





QUESTION 5

LOCUS POINT Q : A - B	10
LOCUS POINT P : A - C	10
NAME AND CALCULATIONS	7
PRESENTATION	3
TOTAL	30

QUESTION 5

Figure 5 shows a circular disc with centre point O as well as two contours. The position of points P and Q are also given. Determine :

- 5.1 The locus of point Q if the disc completes half a revolution on contour A-B.
- 5.2 The locus of point P if the disc completes half a revolution on contour (arc) A-C.
- 5.3 Name the loci generated and show all constructions and calculations.

PRESENTATION

30

46

VRAAG 5

Figuur 5 toon 'n ronde skyf met middelpunt O asook twee kontoere. Die posisie van punte P en Q word ook getoon. Bepaal :

- 5.1 Die lokus van punt Q indien die skyf 'n halwe omwenteling oor kontoer A-B voltooi.
- 5.2 Die lokus van punt P indien die skyf 'n halwe omwenteling oor kontoer (boog) A-C voltooi.
- 5.3 Benoem die lokusse wat gevorm word en toon alle konstruksies en berekeninge.

AANBIEDING

10

10

7

3

30

$\phi / 12 = 9^\circ$

$\frac{\pi d}{12} = 17\text{mm}$

QUESTION 6

Figure 6 shows the incomplete view of a disc cam. Complete the following :

- 6.1 The cam profile
- 6.2 Project the graph of displacement. Show all necessary constructions.

Measure and tabulate the following in the table provided:

- 6.3 Minimum follower radius
- 6.4 The angular displacement when the follower has travelled for 55mm
- 6.5 The displacement of the follower when the cam has rotated through 120°
- 6.6 The total travel of the follower
- 6.7 The travel of the follower when the cam has rotated through 285°
- 6.8 On the graph of displacement indicate the dwell angle with the letters AB

PRESENTATION

47

VRAAG 6

Figuur 6 toon die onvoltooide aansig van 'n skyfnok. Voltooi die volgende :

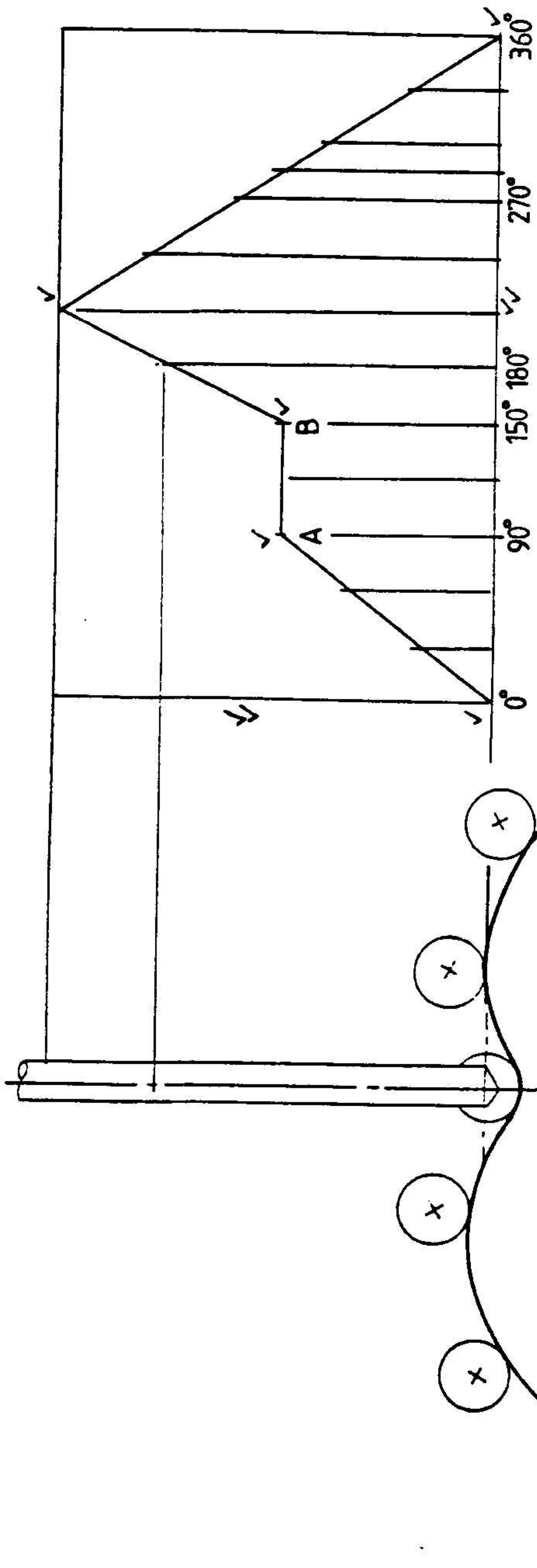
- 6.1 Die nokprofiel
- 6.2 Projekteer die verplasingdiagram. Toon al die nodige konstruksies.

Meet en beantwoord die volgende in die tabel wat voorsien word:

- 6.3 Minimum volgerradius
- 6.4 Die hoekverplasing wanneer die nokvolger 'n slag van 55mm voltooi het
- 6.5 Die verplasing van die volger sodra die nok 120° roteer het
- 6.6 Die totale slag van die volger
- 6.7 Die slag van die volger sodra die nok 285° voltooi het
- 6.8 Op die verplasingdiagram dui die rushoek aan met die letters AB

AANBIEDING

25



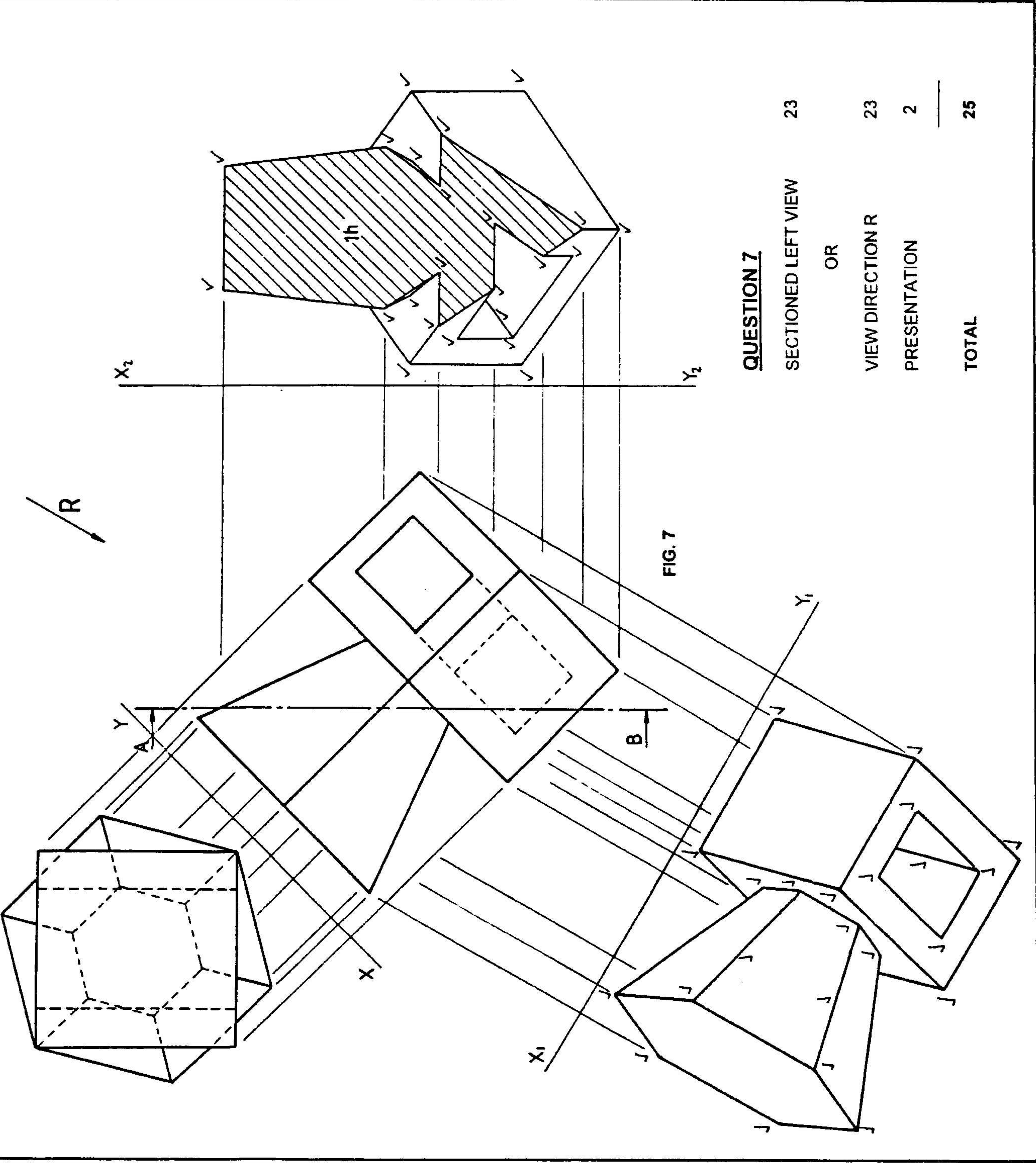
SCALE / SKAAL 9mm = 30°

GRAPH OF DISPLACEMENT
 VERPLASINGSDIAGRAM

QUESTION 6

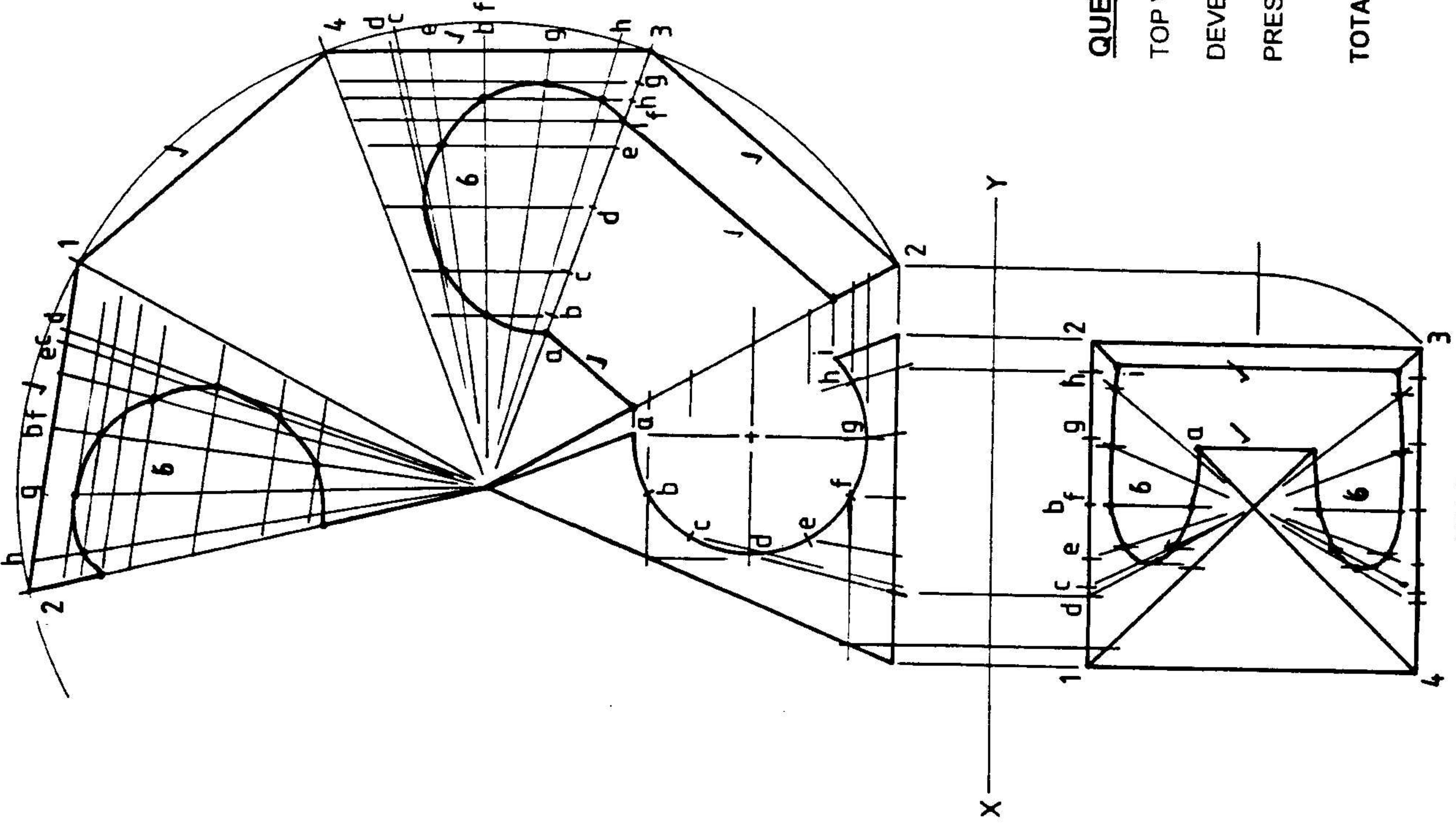
	ANSWERS / ANTWOORDE	
CAM PROFILE	3	(1)
GRAPH OF DISPLACEMENT	9	(2)
ANSWERS	11	(2)
PRESENTATION	2	(2)
TOTAL	25	(2)

FIG. 6



<p>QUESTION 7</p> <p>Figure 7 shows the front view and auxiliary view of a casting compiled from a truncated hexagonal pyramid and a square prism with a rectangular hole cut through it. Draw :</p>	23	OR	23	2	25
	23		23		
<p>7.1 a sectioned left view on cutting plane A-A</p>					
<p>OR</p> <p>7.2 the view of the casting as seen in the direction of arrow R.</p>					
<p>PRESENTATION</p>					
48					
<p>VRAAG 7</p> <p>Figuur 7 toon die vooraansig en hulpaansig van 'n gietstuk wat bestaan uit 'n afgeknote seshoekige piramide en 'n vierkantige prisma met 'n reghoekige gat daardeur gesny. Teken :</p>	23	OF	23	2	25
	23		23		
<p>7.1 die deursnee linkeraansig op snyvlak A-A</p>					
<p>OF</p> <p>7.2 die aansig van die gietstuk in die rigting van pyl R.</p>					
<p>AANBIEDING</p>					

QUESTION 7					
SECTIONED LEFT VIEW				23	
OR					
VIEW DIRECTION R				23	
PRESENTATION				2	
TOTAL					25

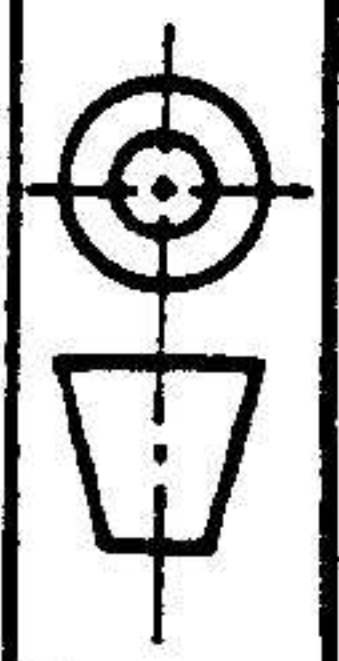


QUESTION 8

TOP VIEW	14
DEVELOPMENT	18
PRESENTATION	3
TOTAL	35

<p>QUESTION 8</p> <p>Figure 8 shows the front view and incomplete top view of a regular square pyramid with a 40mm diameter hole in it.</p> <p>Determine:</p> <p>8.1 The curve of interpenetration in the top view</p> <p>8.2 Development of the outside surface pattern of the pyramid</p> <p>PRESENTATION</p>	14	<p>49</p>
	18	
	3	
	35	
<p>VRAAG 8</p> <p>Figuur 8 toon die vooraansig en onvoltooide boeaansig van 'n reëlmatige vierkantige piramide met 'n 40mm diameter gat daardeur.</p> <p>Bepaal</p> <p>8.1 die deurdringingskromme wat in die boeaansig gevorm word.</p> <p>8.2 ontwikkeling van die buite-oppervlak patroon van die piramide.</p> <p>AANBIEDING</p>	14	<p>49</p>
	18	
	3	
	35	

FIG. 8



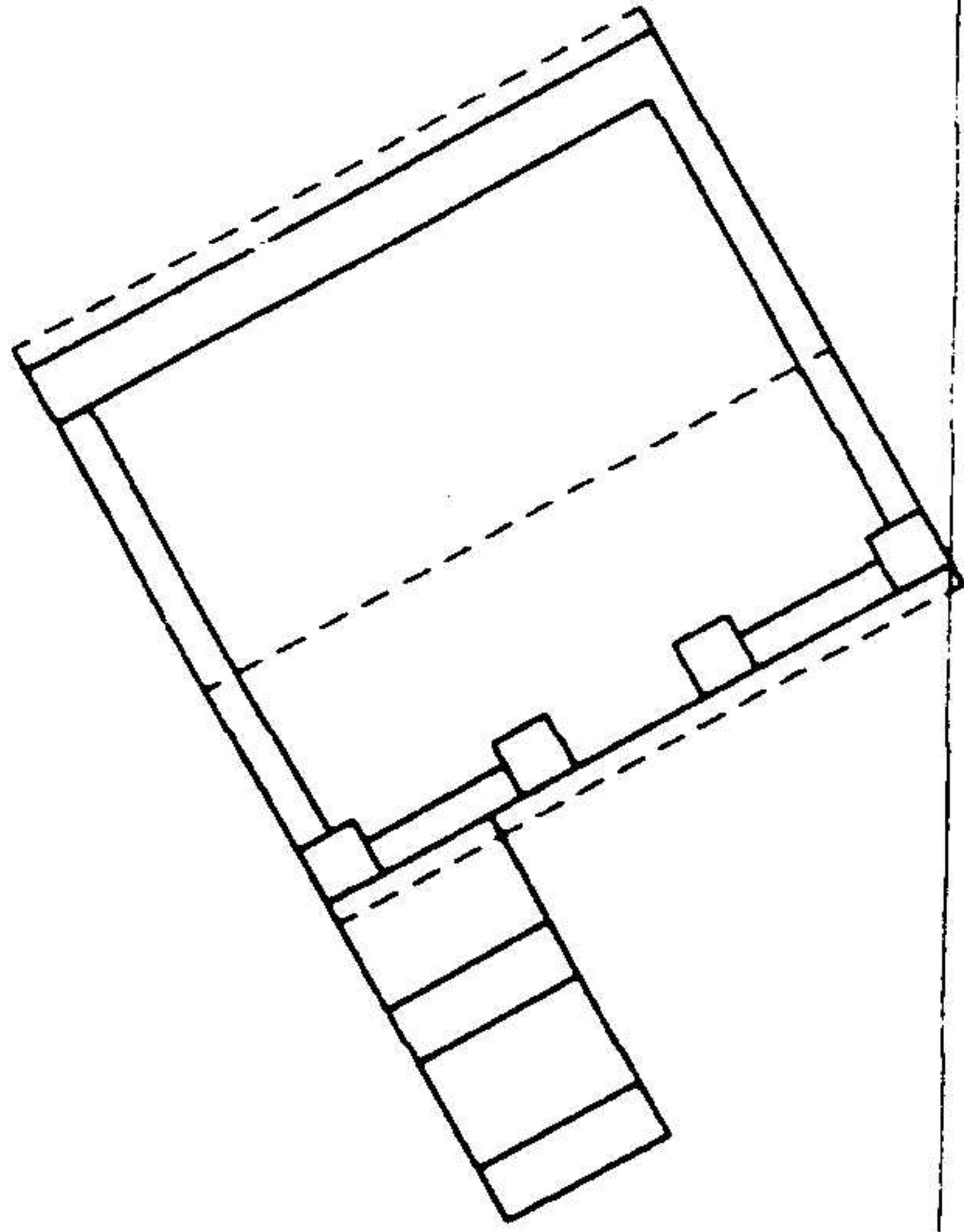
**POSSIBLE ANSWERS FOR /
MOONTLIKE ANTWOORDE VIR :**

**TECHNICAL DRAWING HG
TEGNIESE TEKENE HG**

**PAPER 2
VRAESTEL 2**

711-1/2

MARK ALLOCATION PUNTTOEKENING	
VP	2
PERSPECTIVE/PERSPEKTIEF	40
LINEWORK/LYNWERK	3
TOTAL/TOTAAL	45



PP / PV

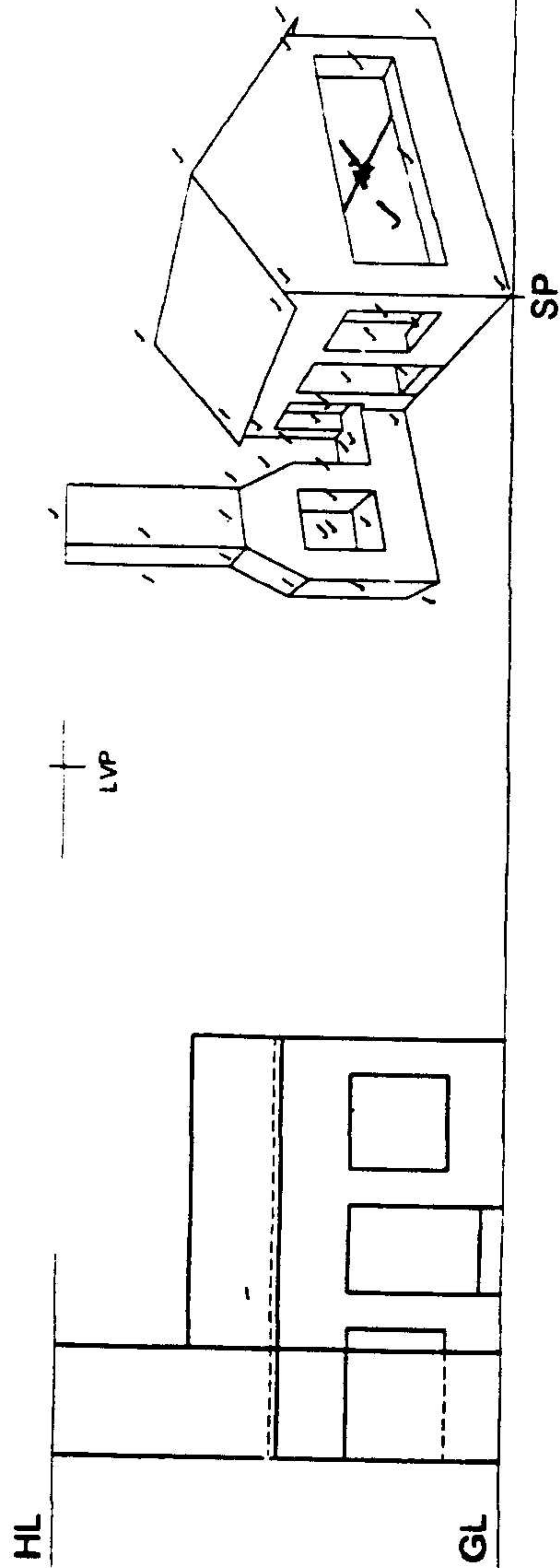


FIGURE 2 / FIGUUR 2

EXAMINATION NUMBER EKSAMENNUMMER

QUESTION 2 / VRAAG 2

DIAGRAM SHEET 2
DIAGRAMVEL 2

MARK ALLOCATION / PUNTE TOEWIJZING			
ISOMETRIC / ISOMETRIE	37		
LINEWORK / LYNWERK	3		
TOTAL / TOTAAL	40		

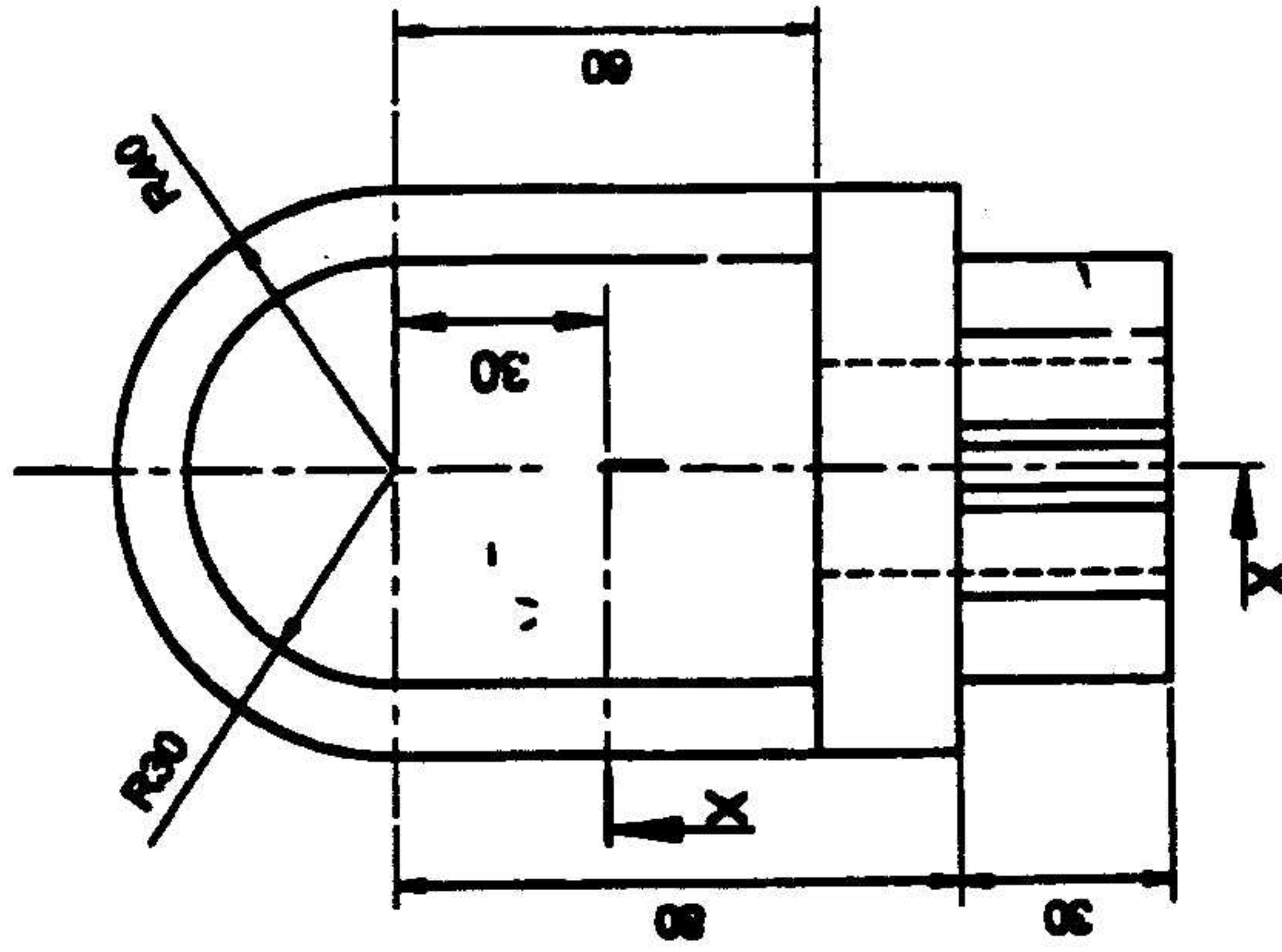
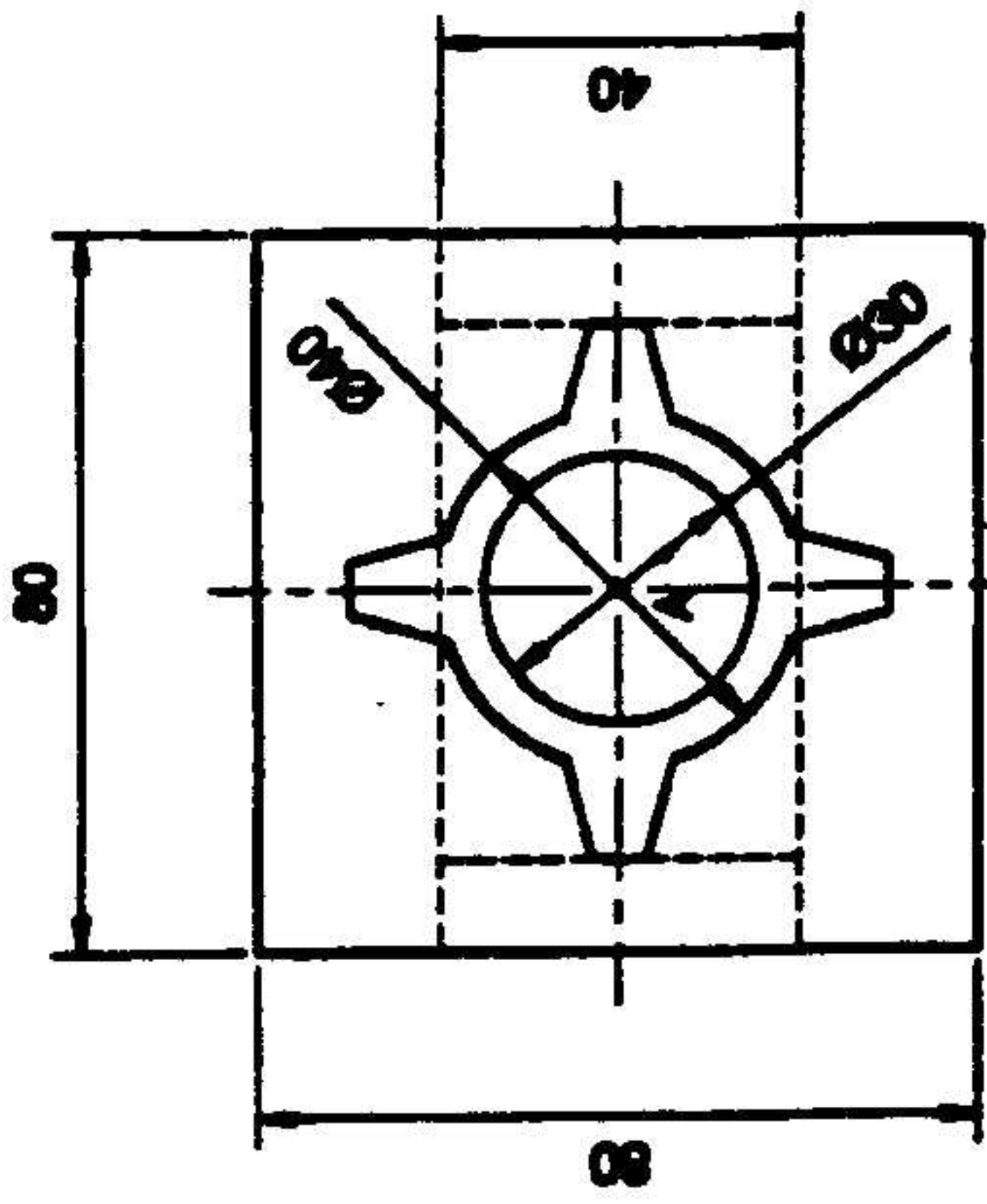


FIGURE 3.1 / FIGUUR 3.1

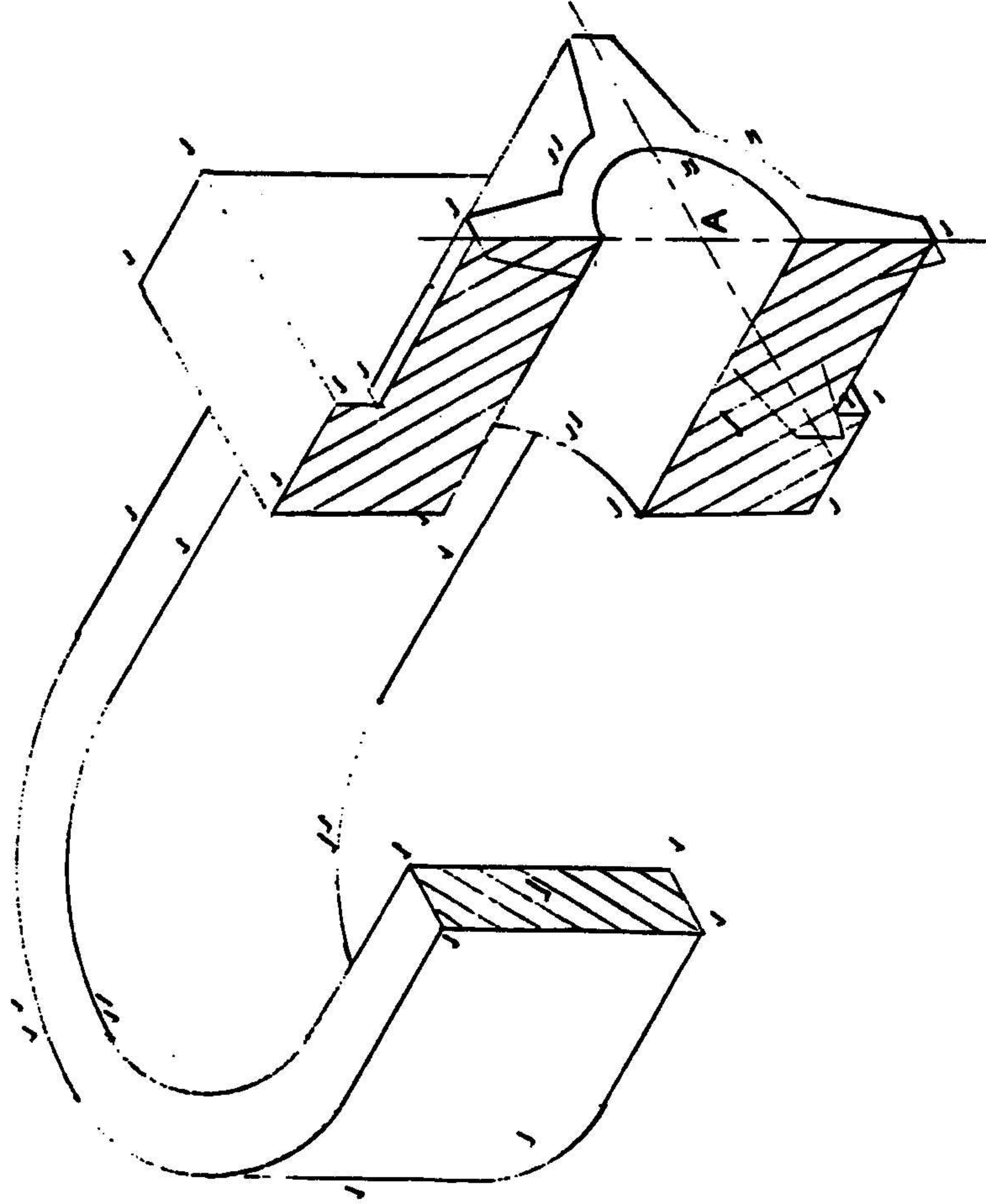


FIGURE 3.2 / FIGUUR 3.2

QUESTION 3 / VRAAG 3

EXAMINATION NUMBER / OORSPROKINGNUMMER

