

QUESTION 1		MARKS PUNTE
The front view and incomplete top view of line segments AB and CD are shown. The shortest distance between the line segments is 15 mm.		
Determine the following by projection and measurement:		
1.1 The true length of line segment AB	6	
1.2 The true angle of inclination of line segment AB to the VP	2	
1.3 A point view of line segment AB	3	
1.4 Complete the top view of line segment CD.	12	
1.5 Show the shortest distance in all the views.	4	
PRESENTATION		3
TABULATE YOUR ANSWERS NEATLY.		30
<b>VRAAG 1</b>		
Die vooraansig en onvoltooide boansig van lynstukke AB en CD word getoon. Die kortste afstand tussen die twee lynstukke is 15 mm.		
Bepaal die volgende deur projeksie en meting:		
1.1 Die ware lengte van lynstuk AB	6	
1.2 Die ware helling van lynstuk AB ten opsigte van die VV	2	
1.3 'n puntaansig van lynstuk AB	3	
1.4 Die voltooide boansig van lynstuk CD	12	
1.5 Toon die kortste afstand in al die aansigte.	4	
AANBIEDING		3
BEANTWOORD NETJIES IN TABELVORM.		30



**QUESTION 2**

The figure shows the front view and top view of plane figure ABC which lies in an oblique plane.

Determine the following:

- 2.1 The traces of the oblique plane VTH which contains the plane figure ABC (10)
- 2.2 The true angle between the oblique plane and the HP (8)
- 2.3 The true shape and size of plane figure ABC (7)
- 2.4 Construct a perpendicular line segment with a true length of 30 mm on the centre point of plane figure ABC. (7)
- 2.5 Show the perpendicular line segment in all the views. (4)

PRESENTATION 4  
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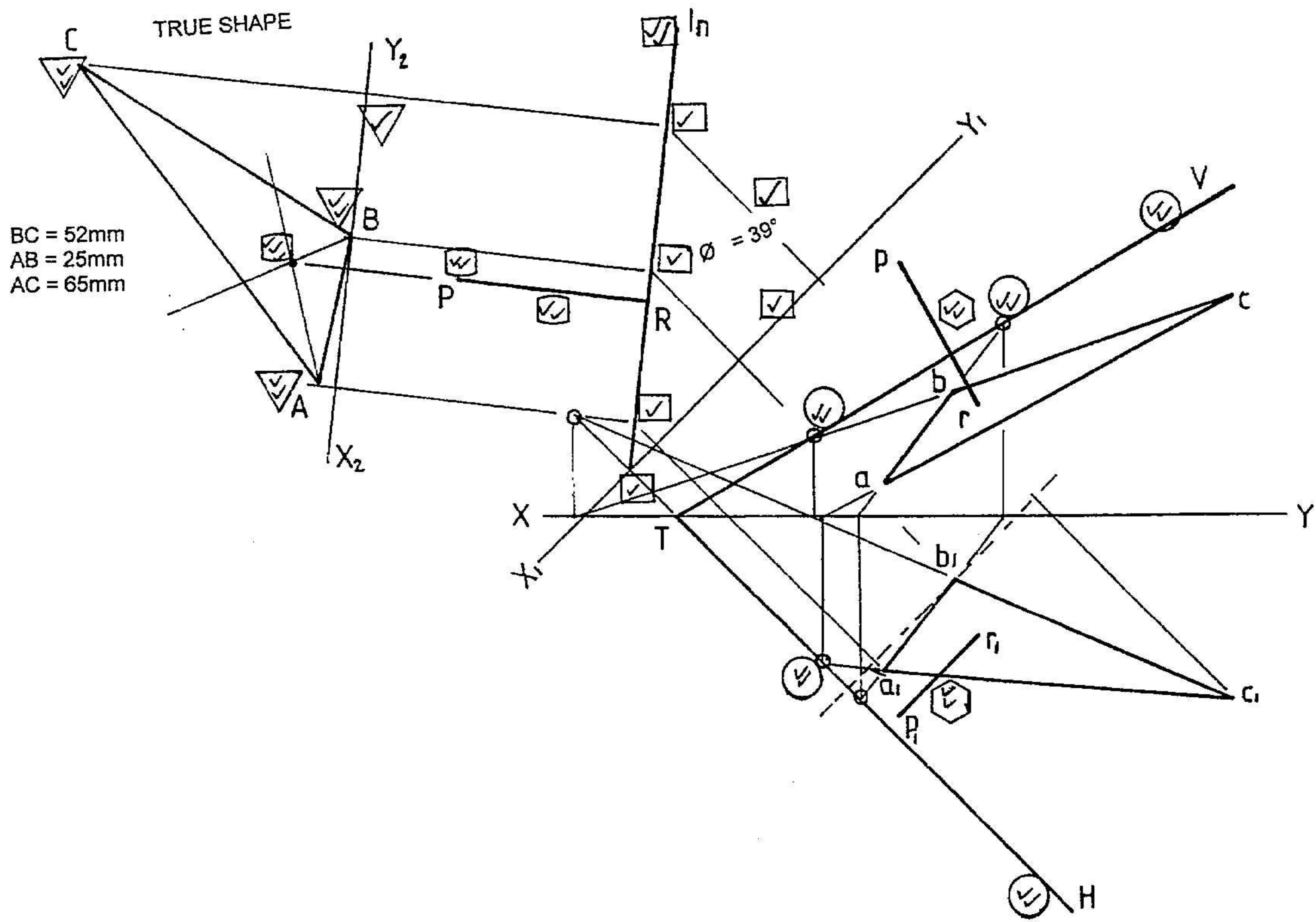
**VRAAG 2**

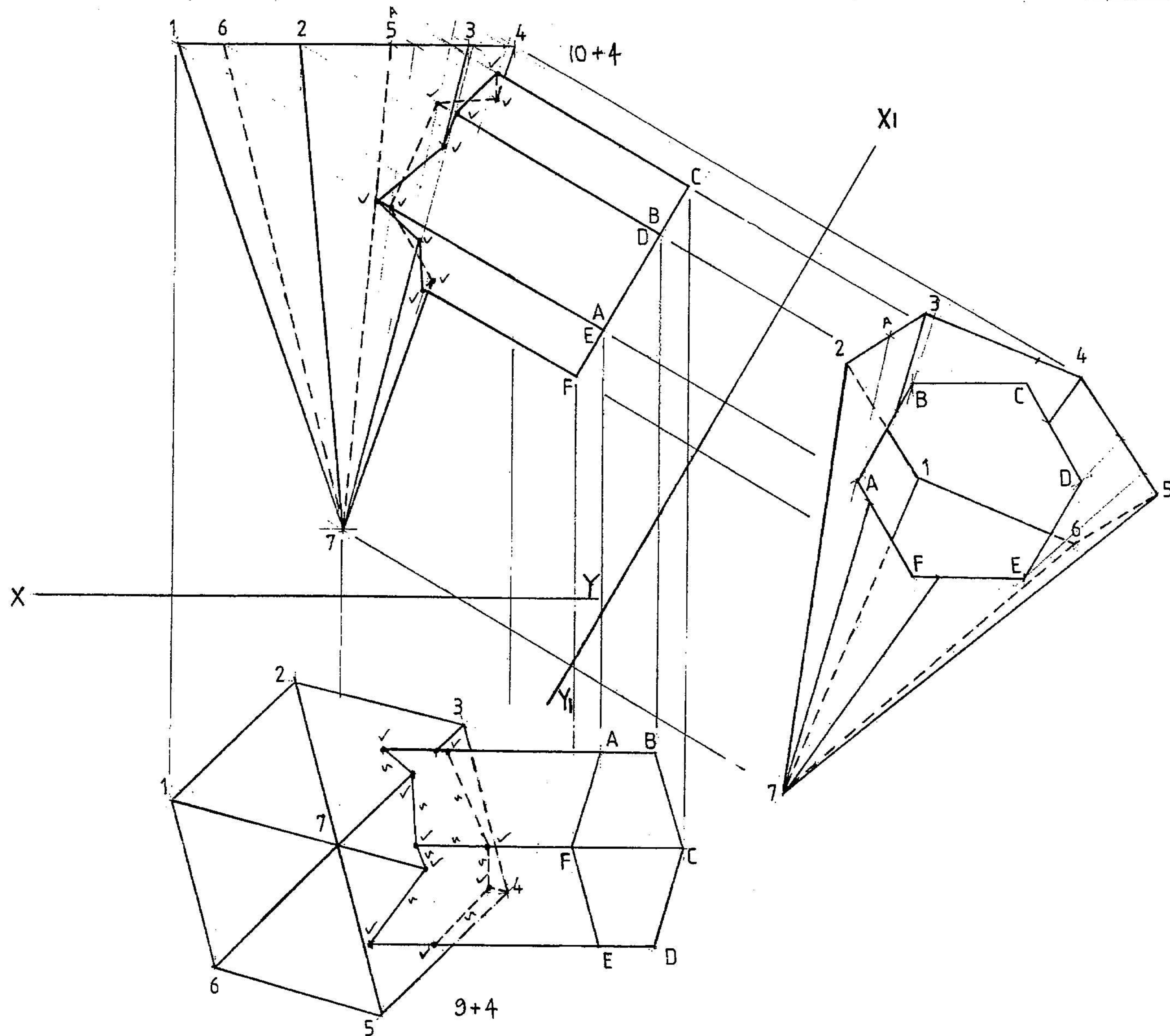
Die figuur toon die vooraansig en boaansig van vlakfiguur ABC wat in die skuinsvlak VSH lê.

Bepaal die volgende:

- 2.1 Die snypore van die skuinsvlak VSH wat vlakfiguur ABC sal bevat. (10)
- 2.2 Die ware helling van die skuinsvlak t.o.v. die HV. (8)
- 2.3 Die ware vorm en grootte van vlakfiguur ABC (7)
- 2.4 Konstrueer 'n loodlyn met 'n ware lengte van 30 mm op die middelpunt van vlakfiguur ABC. (7)
- 2.5 Toon die loodlyn aan in al die aansigte. (4)

AANBIEDING 4  
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**QUESTION 3**

The figure shows the incomplete top view and an auxiliary view of a hexagonal pyramid penetrated by a hexagonal prism.

Determine:

3.1 The curve of interpenetration in the top view

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3.2 Draw the front view and construct the curve of interpenetration.

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PRESENTATION

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**VRAAG 3**

Die figuur toon die onvoltooide boaansig en 'n hulpaansig van 'n seshoekige piramide wat ingedring word deur 'n seshoekige prisma.

Bepaal :

3.1 Die deurdringingskromme wat in die boaansig gevorm word

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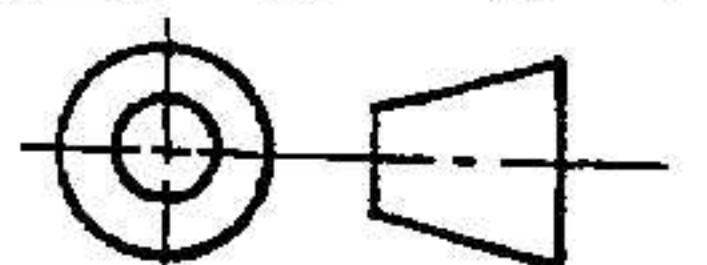
3.3 Teken die vooraansig en konstrueer die deurdringingskromme.

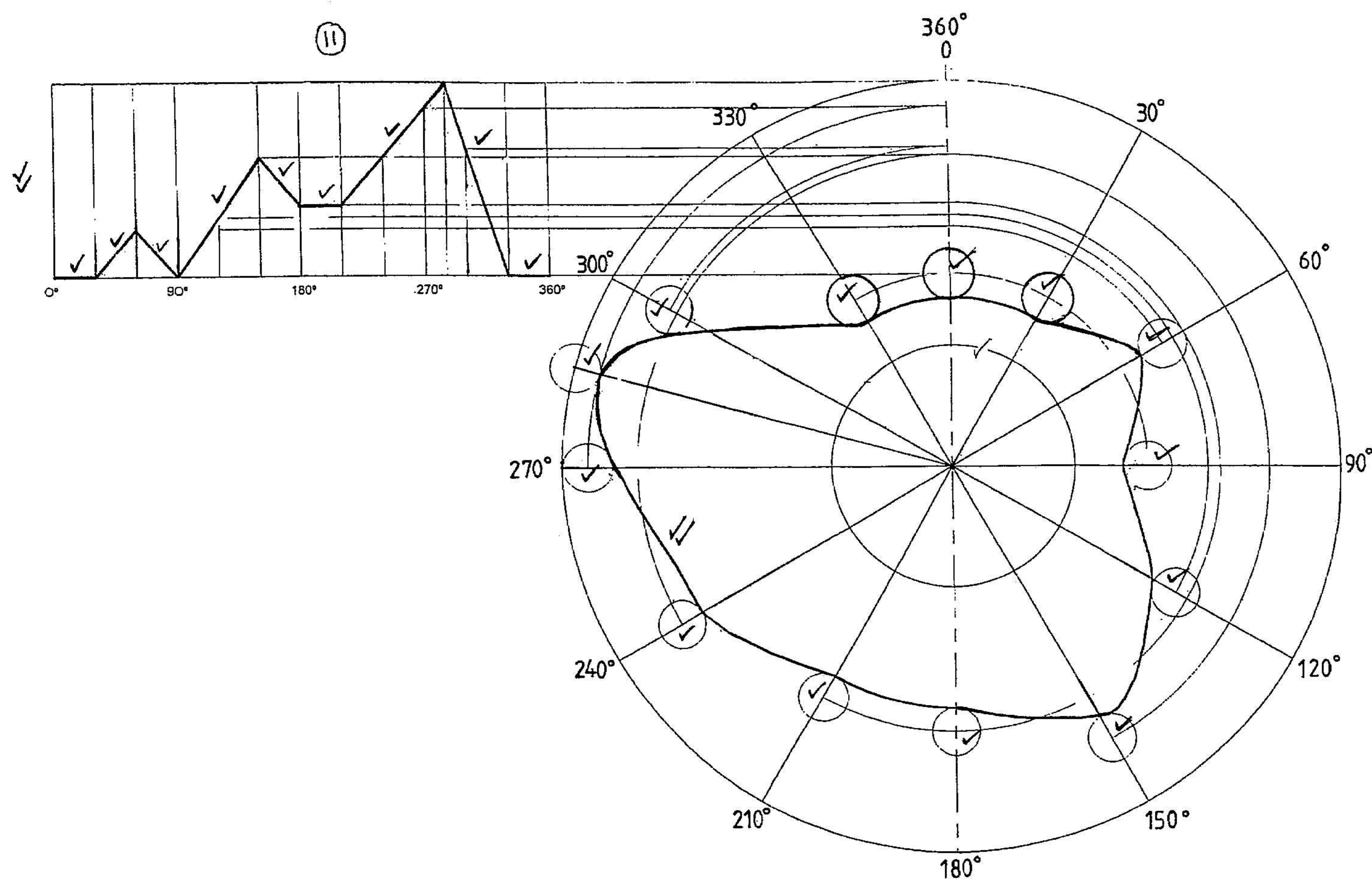
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AANBIEDING

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**QUESTION 4**

The divisions for a displacement diagram as well as the centre line of a cam are shown.

4.1 Draw the displacement diagram of the cam with the following information:

- For the first 30° the follower remains at rest
- A rise of 25% of the displacement for the next 30°
- A descent to minimum for the next 30°
- A rise of 25 mm for the next 60°
- A descent of 25% of the displacement for the next 30°
- Remains at rest for the next 30°
- Then rise to maximum for the next 75°
- A descent of 100% (40 mm) for the next 45°
- Remains at rest for the next 30°

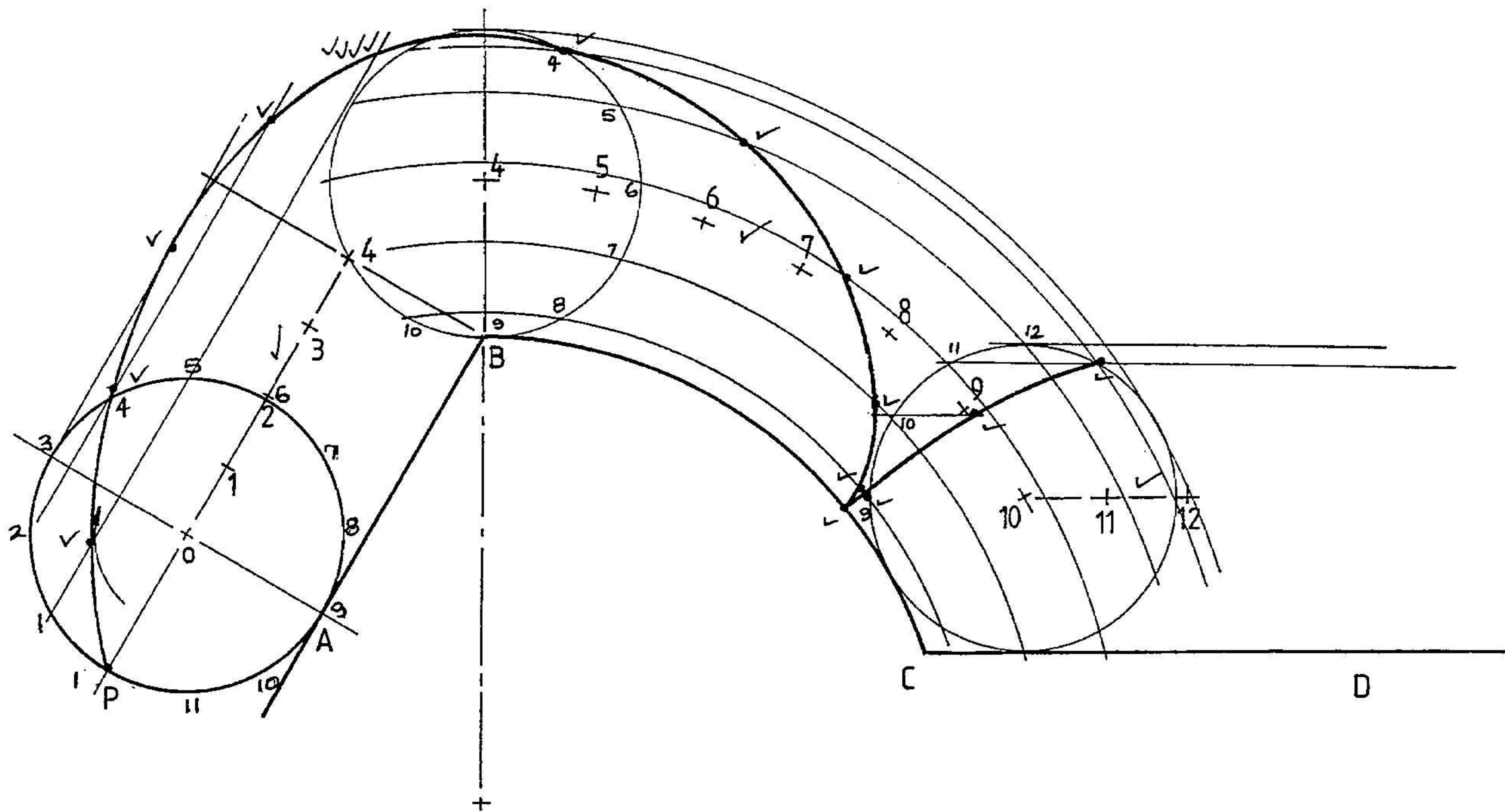
4.2 Develop the cam profile that will provide reciprocating movement of constant speed to the roller follower that moves on the same plane as the camshaft.

Use the following data when drawing the cam:

- Roller follower diameter : 10 mm
- Rotation : anti-clockwise
- Camshaft diameter : 50 mm
- Minimum cam radius : 35 mm

PRESENTATION

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$\frac{3.14 \times 50}{12} = 13 \text{ mm}$   
 $\varnothing/12 = 12,5^\circ$

A-B+C-D : CYCLOID ✓✓  
 B-C : EPI-CYCLOID ✓✓

**QUESTION 5**

The figure shows the contour on which a circular disc must complete one revolution. The disc rolls without slipping in the direction indicated.

- 5.1 Determine the locus for point P. 17
- 5.2 Name the loci generated. 4
- 5.3 Show all constructions and calculations. 6

PRESENTATION 3

TABULATE YOUR ANSWERS NEATLY. 30

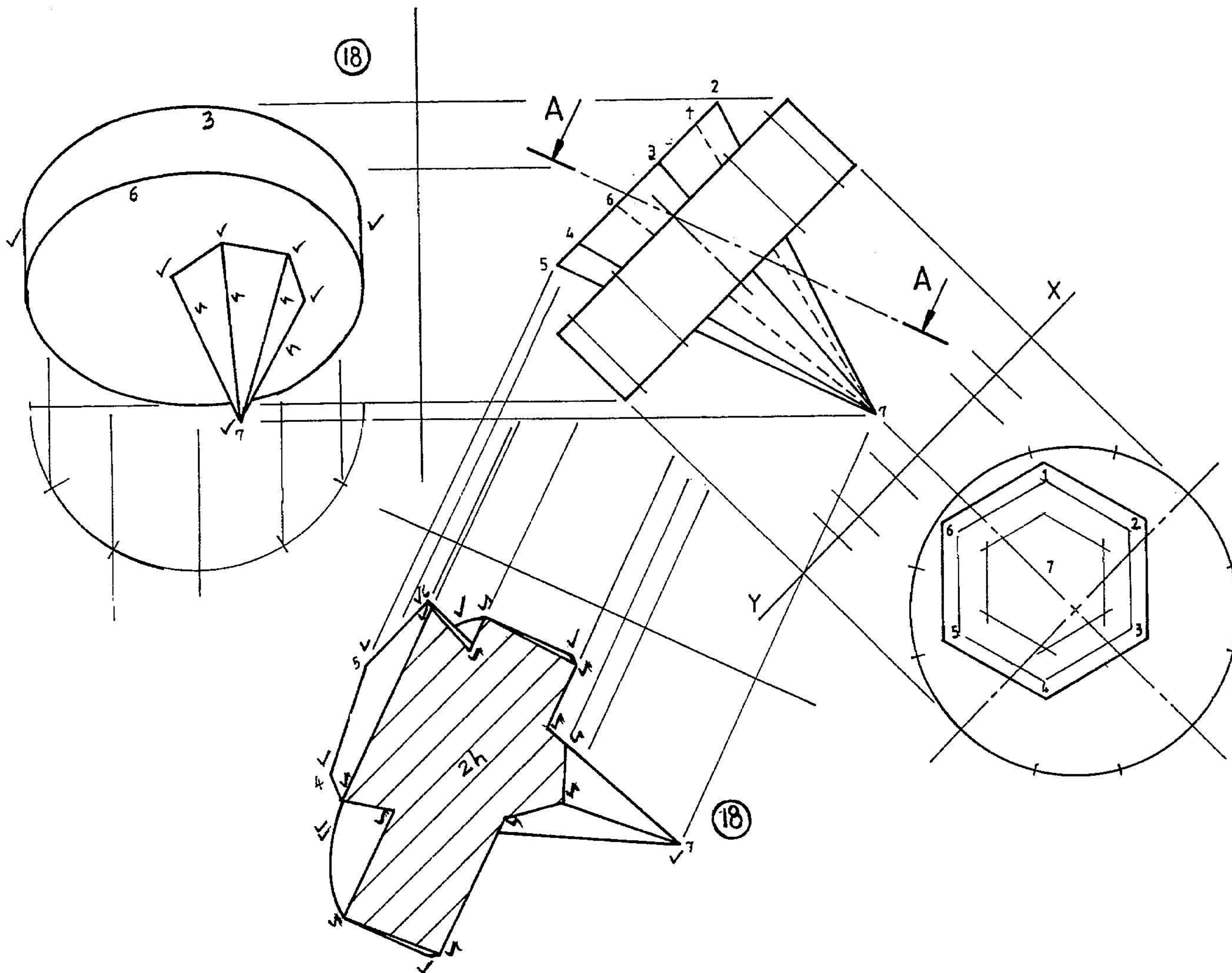
**VRAAG 5**

Die figuur toon die kontoer waarop 'n ronde skyf een omwenteling moet voltooi. Die skyf rol sonder om te gly in die rigting wat aangetoon word.

- 5.1 Bepaal die lokus vir punt P. 17
- 5.2 Benoem die lokus/se wat gevorm is. 4
- 5.3 Toon alle konstruksies en berekeninge 6

AANBIEDING 3

BEANTWOORD NETJIES IN TABELVORM. 30



**QUESTION 6**

The front view and auxiliary view of a casting is shown. The casting consists of a cylindrical disc and a hexagonal pyramid.

Determine :

6.1 The right view. Hidden detail is not required

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6.2 A sectional view in the direction of cutting plane A-A

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PRESENTATION

4

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**VRAAG 6**

Die vooraansig en hulpaansig van 'n gietstuk word getoon. Die gietstuk bestaan uit 'n silinder en 'n seshoekige piramide.

Bepaal :

6.1 Die regteraansig. Geen verborge besonderhede hoef getoon te word nie.

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6.2 'n Deursnee aansig in die rigting van snyvlak A-A

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AANBIEDING

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QUESTION 6  
 VRAAG 6

