STAPLE

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

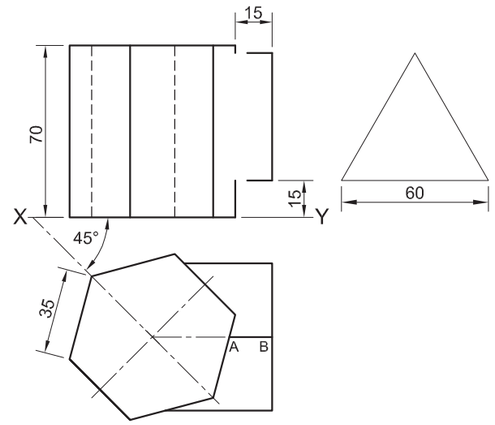
- The incomplete front view and top view of an equilateral triangular prism that has been shaped to fit around a right regular hexagonal prism. The axes of both prisms lie in a common vertical plane.
- An auxiliary view of the triangular prism.

Instructions:

Draw, to scale 1 : 1, the following:

2.1 The given top view
2.2 The complete front view clearly showing the curve of interpenetration
2.3 The complete right view
2.4 The development of the surface of the triangular prism
Make **AB** the seam.

- Show ALL hidden detail.
- Show ALL necessary construction. **[35]**



AB IS THE SEAM.

ASSESSMENT CRITERIA						
1	TOP VIEW	6				
2	FRONT VIEW	11				
3	RIGHT VIEW	7				
4	DEVELOPMENT	11				
PENALTIES (-)						
	TOTAL	**35**				

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BASIC-EDUCATION

STAPLE

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

- The incomplete front view and top view of a right square prism that has been shaped to fit around a right equilateral triangular prism. The axes of both prisms lie in a common vertical plane.
- The auxiliary views of the square prism.

Instructions:

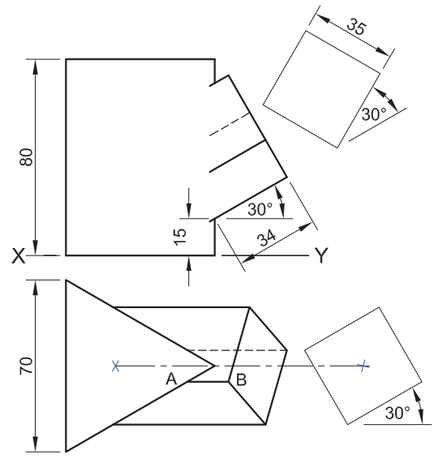
Draw, to scale 1 : 1, the following:

2.1 The given top view

2.2 The complete front view clearly showing the curve of interpenetration

2.3 The development of the surface of the square prism. Make **AB** the seam.

- Show ALL hidden detail.
- Show ALL necessary construction and fold lines. **[33]**



AB IS THE SEAM.

ASSESSMENT CRITERIA						
1	TOP VIEW	7½				
2	FRONT VIEW	14				
3	DEVELOPMENT	11½				
	TOTAL	**33**				

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BASIC-EDUCATION

STAPLE

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

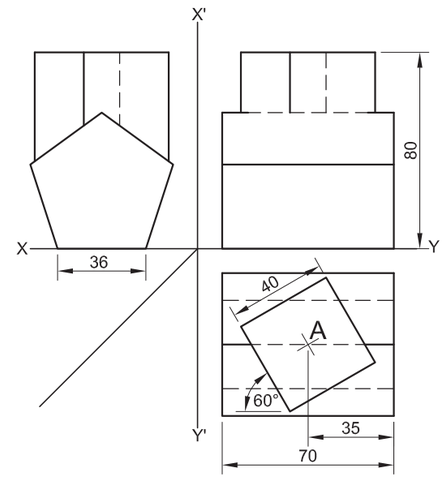
- The incomplete front view, right view and top view of a regular square prism that has been shaped to fit around a right regular pentagonal prism. The axes of both prisms lie in a common vertical plane.
- The position of point A.

Instructions:

Draw, to scale 1 : 1, the following views of the TWO prisms:

2.1 The given top view
2.2 The given right view
2.3 The complete front view, clearly showing the curve of interpenetration
2.4 Develop the surface of the square prism.

Show ALL hidden detail and fold lines. **[37]**



A

ASSESSMENT CRITERIA						
1	TOP VIEW	7				
2	RIGHT VIEW	8				
3	FRONT VIEW	13				
4	DEVELOPMENT	9				
TOTAL		**37**				

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BASIC-EDUCATION

STAPLE

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

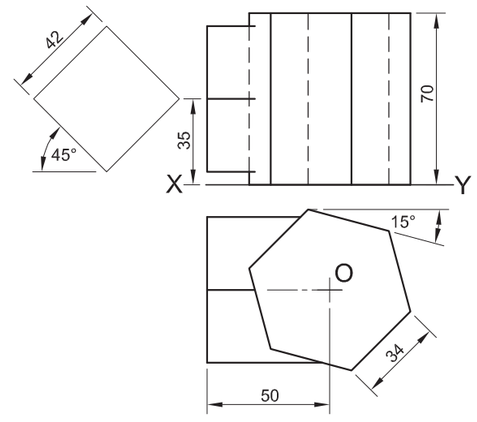
- The incomplete front view and the top view of a regular square prism that has been shaped to fit around a right regular hexagonal prism. The axes of both prisms lie in a common vertical plane.
- The auxiliary view of the square prism
- The position of point O on the drawing sheet

Instructions:

Draw, to scale 1 : 1, the following views of the TWO prisms:

2.1 The given top view
2.2 The left view
2.3 The complete front view, clearly showing the curve of interpenetration
2.4 Develop the surfaces of the square prism.

Show ALL hidden detail and fold lines. **[35]**



O

ASSESSMENT CRITERIA						
1	TOP VIEW	6				
2	LEFT VIEW	5				
3	FRONT VIEW	14				
4	DEVELOPMENT	10				
	TOTAL	**35**				

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BASIC-EDUCATION

STAPLE

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

- The incomplete front view and top view of a connecting piece for a ventilation system. The connecting piece consists of a hexagonal pipe (A) and a cylindrical branch pipe (B) that lie in a common vertical plane
- Centre point D as the reference point on the drawing sheet

Instructions:

2.1 Draw, to scale 1 : 1, the following views of the connecting piece:

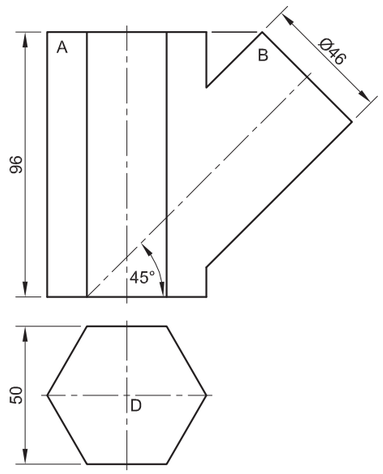
2.1.1 The complete top view using point D as the reference point

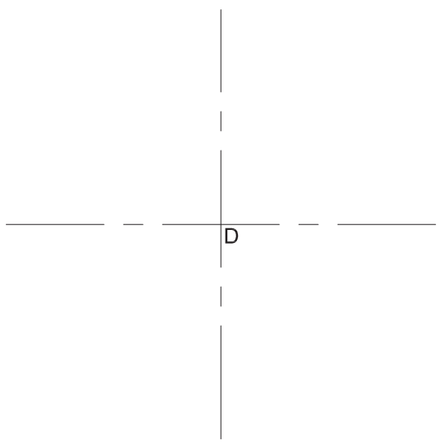
2.1.2 The complete front view clearly showing the curve of interpenetration

2.2 Develop the surface of the cylindrical branch pipe (B).

- Show ALL necessary construction and calculations.

[40]





ASSESSMENT CRITERIA				
1. GIVEN + CENTRE LINES	8			
2. AUX. CIRCLES	4			
3. PROJECTION	4			
4. INTERPENETRATION	$5\frac{1}{2}$			
5. TOP VIEW OF CYLINDER	7			
6. DEVELOPMENT	$11\frac{1}{2}$			
TOTAL	**40**			

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GAUTENG

STAPLE

QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

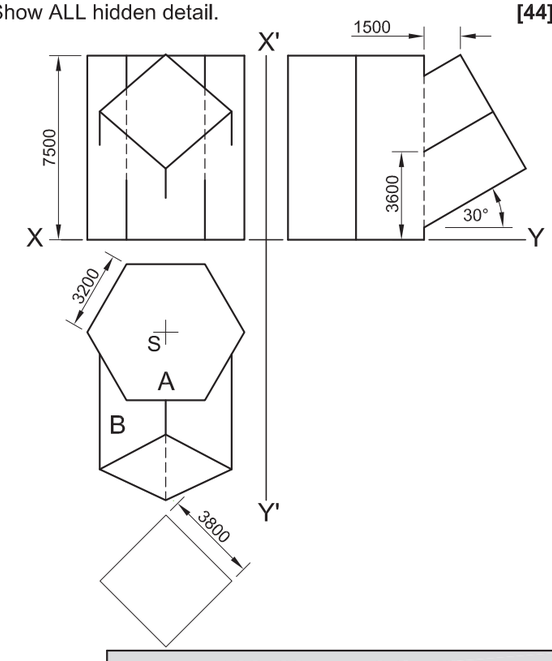
The incomplete front view, top view and the incomplete left view of an anchor used to secure an arch over a stadium. The anchor is a concrete casting in the form of a hexagonal prismatic footing (A) and a square branch piece (B), that has been shaped to fit around the footing. The axes of both pieces lie in a common vertical plane. The branch piece will be cladded with stainless steel.

Instructions:

2.1 Draw, to scale 1:100 and in first-angle orthographic projection, the following views of the complete anchor clearly showing the curve of interpenetration that will be formed between the two pieces:
- 2.1.1 The top view using point S as a reference
- 2.1.2 The complete front view
- 2.1.3 The complete left view

2.2 Develop the surface of the stainless steel cladding that will cover the branch piece B.
Label the development.

- Show ALL necessary constructions.
- Show ALL hidden detail. **[44]**



ASSESSMENT CRITERIA				
TOP VIEW & CONSTRUCTION	6½			
FRONT VIEW	17			
LEFT VIEW	10			
DEVELOPMENT	10½			
TOTAL	**44**			

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STAPLE

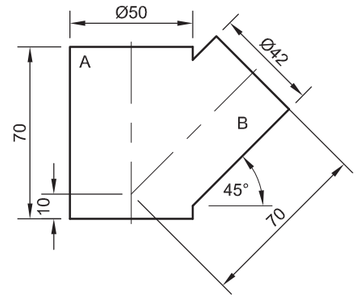
QUESTION 2: INTERPENETRATION AND DEVELOPMENT

A company that installs ventilation systems in buildings, designed a pipe system to fit into an office block. The system consists of a main cylindrical pipe and smaller branch pipes.

Given:
The incomplete front view of a connecting piece for the ventilation system consisting of a cylindrical pipe (A) and a cylindrical branch pipe (B). The axes of both pipes lie in a common vertical plane.

Instructions:
2.1 Draw in first-angle orthographic projection the following views of the connecting piece clearly showing the curve of interpenetration:
2.1.1 The front view
2.1.2 The top view
2.2 Develop the surface of the branch pipe marked B.

- Show ALL necessary construction and calculations. **[37]**



ASSESSMENT CRITERIA	
FRONT VIEW	10
TOP VIEW	6
CENTRE LINES (5x½)	2½
CONSTRUCTION	6
FORMULA	2
DEVELOPMENT	10½
TOTAL	**37**

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