



education
 Department:
 Education
 Kwazulu - Natal

INSTRUCTIONS

1. The paper consists of **THREE** questions.
2. Answer **ALL** the questions.
3. All drawings must be drawn to scale 1:1, unless otherwise stated.
4. The questions must be answered on the answer sheets provided.
5. All the answer sheets must be re-stapled in numerical sequence and handed in, irrespective of whether the question was attempted or not.
6. Careful time management is essential in order to complete all questions.
7. Print your name in the block provided on every answer sheet.
8. All answers must be drawn accurately and neatly.
9. Any details or dimensions not given must be assumed in good proportion.

GRADE 10

ENGINEERING GRAPHICS AND DESIGN
PAPER 1

MARKS : 100

TIME : 1.5 HOURS

THIS PAPER CONSISTS OF 4 PAGES.

FOR OFFICIAL USE ONLY		MODERATED MARK
1	40	
2	30	
3	30	
TOTAL	100	

LEVEL	CHECKED BY

NAME :	
GRADE :	

Please turn over

QUESTION 1

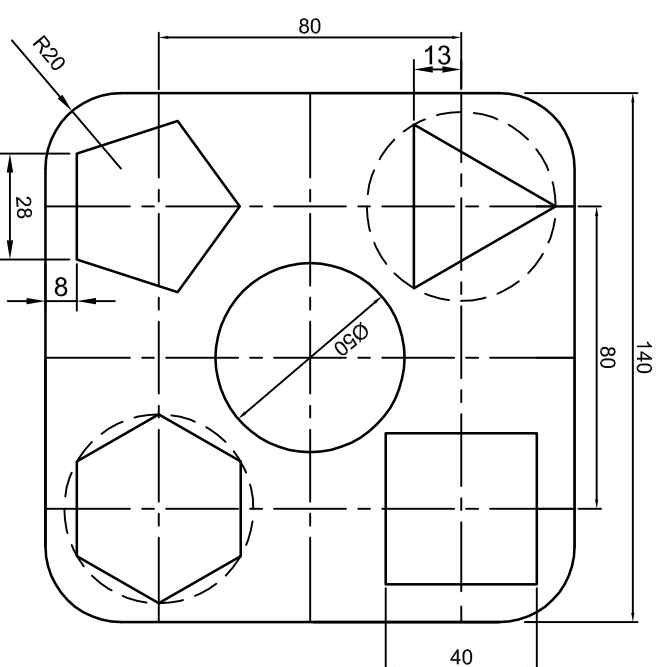


Figure 1

Figure 1 represents a METAL PLATE with a variety of geometrical shapes cut out. The equilateral triangle and hexagon are each inscribed in a circle with a diameter of 60mm. You are required to:-

- Draw the given figure in the space provided
- Insert all dimensions.
- Show all construction lines.

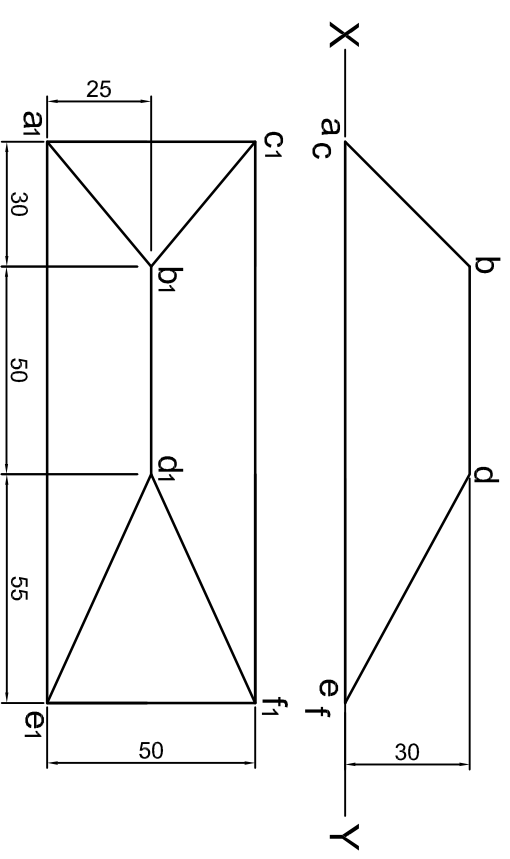
ASSESSMENT CRITERIA	
● SIDES x4	4/2 = 2
+ FILLET CENTRES x4	4 x1 = 4
● FILLETS x4	4 x1 = 4
● POLYGON CENTRES X4	4 x1 = 4
Δ CIRCLE + SQUARE	6/2 = 3
✓ INSCRIBED TRIANGLE + HEXAGON	20/2 = 10
✓ PENTAGON	12/2 = 6
DIMENSIONS	7 x1 = 7
TOTAL	40

40

NAME :

GRADE :

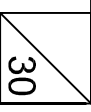
QUESTION 2



As part of a school project you are required to make a model of a typical hipped roof using timber. Shown above is the front and top view of the roof structure.

- Draw the given views.
- Determine and tabulate the true length of line segment AB
- Determine and tabulate the true inclination of line segment DE to the vertical plane
- Calculate the total length of timber used to construct side ABDE .

ASSESSMENT CRITERIA			
✓	GIVEN VIEWS (FRONT + TOP)	12	
●	TRUE LENGTH (AB)	6	
●	TRUE INCLINATION (DE) TO VP	8	
	TOTAL LENGTH (ABDE)	4	
	TOTAL	30	



X-----Y

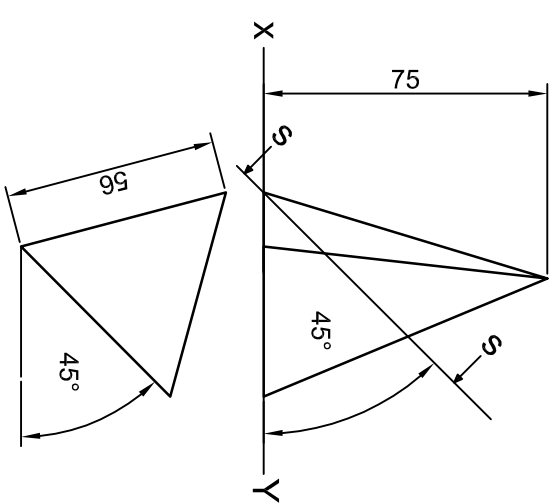
a1 L

TRUE LENGTH (AB)	
TRUE INCLINATION (DE) TO VP	
TOTAL LENGTH (ABDE)	

NAME : _____

GRADE : _____

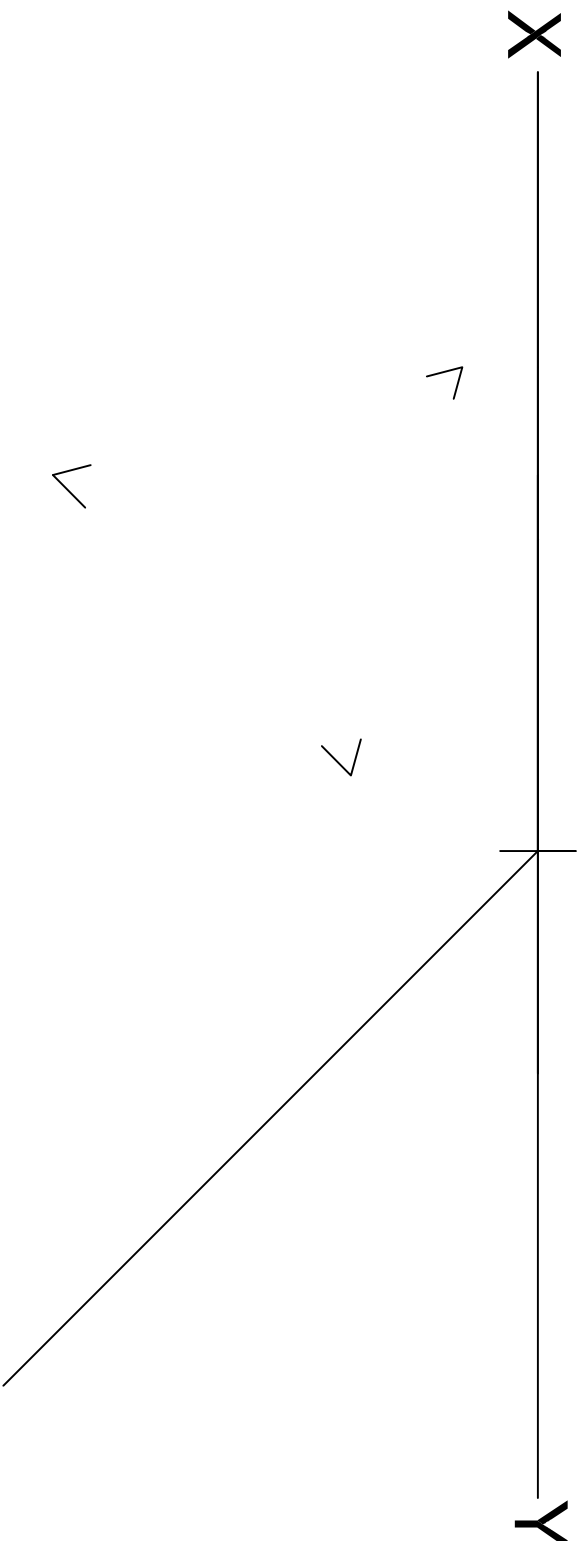
QUESTION 3



The diagram above shows the front and incomplete top views of an equilateral triangular pyramid resting with its base on the horizontal plane.

The solid pyramid is cut using cutting plane S-S.

- Draw the given views.
- Project a sectional top view.
- Project a sectional left view.
- Draw the true shape of the sectioned surface. Label the true shape.



ASSESSMENT CRITERIA			
✓	GIVEN VIEWS (FRONT + TOP)	8	
●	TOP VIEW	8½	
●	LEFT VIEW	9½	
Δ	TRUE SHAPE	4	
	TOTAL	30	

● represent ½ marks

30

NAME :

GRADE :