SENIOR CERTIFICATE EXAMINATION
SENIORSERTIFIKAAT-EKSAMEN

OCTOBER / NOVEMBER
OKTOBER / NOVEMBER

2004

TECHNICAL DRAWING

TEGNIESE TEKENE

(First Paper: Descriptive Geometry and Locus)
(Eerste Vraestel: Beskrywende Meetkunde en Lokus)

SG **711-2/1**

7 pages + cover
7 bladsye + voorblad

TECHNICAL DRAWING SG: Paper 1

711 2 1 SG

COPYRIGHT RESERVED / *KOPIEREG VOORBEHOU*
APPROVED BY UMALUSI / *GOEDGEKEUR DEUR UMALUSI*

GAUTENGSE DEPARTEMENT VAN ONDERWYS
NOVEMBER 2004(V)

TEGNIESE TEKENE SG – EERSTE VRAESTEL
(Beskrywende Meetkunde en Lokus)

Tyd: 3 uur
Punte: 150

INSTRUKSIES:

1) Beantwoord alle vrae op die ANTWOORDVELLE 711-2/1
2) Drukskryf jou EKSAMENNOMMER in die titelblok onderaan elke antwoordvel.
3) Gebruik ´n skaal van 1:1 vir alle antwoorde.
4) Toon alle projeksie en konstruksielyne.
5) Tabuleer jou antwoorde waar nodig.
6) Kram alle antwoordvelle in numeriese volgorde.
7) Goeie lynwerk en netheid sal in jou guns tel.
8) Die gebruik van gekleurde lood en penne is verbode.

GAUTENG DEPARTMENT OF EDUCATION
NOVEMBER 2004(V)

TECHNICAL DRAWING SG - FIRST PAPER
(Descriptive Geometry and Locus)

TIME: 3 hours
MARKS: 150

INSTRUCTIONS:

1) Answer all questions on ANSWER SHEETS 711-2/1.
2) Print your EXAMINATION NUMBER in the title block at the bottom of each sheet.
3) Use a scale of 1:1 for all questions.
4) All construction and projection lines must be shown.
5) Tabulate your answers where applicable.
6) Staple all answer sheets together in numerical order.
7) Neatness and clear presentations will count in your favour.
8) Do not use coloured pens or pencils.

Vraag / Question	Totaal / Total		
1	24		
2	14		
3	16		
4	29		
5	25		
6	29		
7	13		
Totaal / Total	**150**		

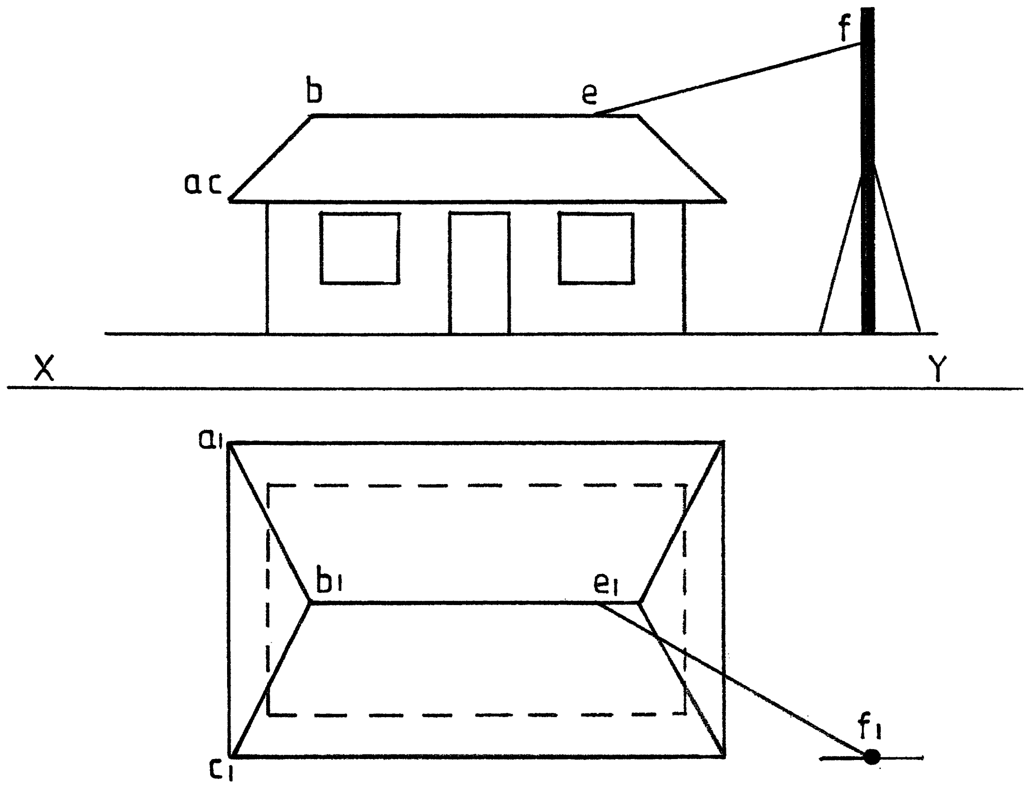


FIG. 1.1

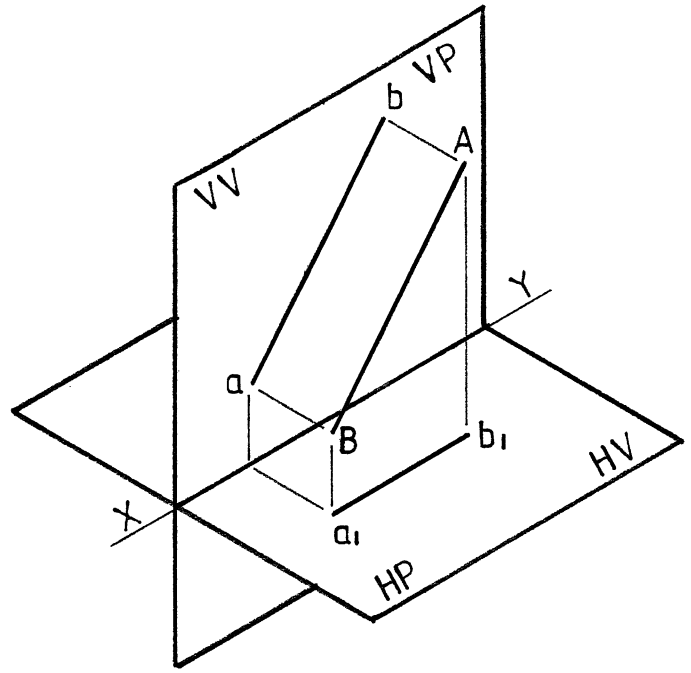


FIG. 1.2

Vraag 1

Figuur 1.1 toon die vooraansig en boaansig van ´n woning en ´n lugdraad EF. Bepaal:		
1.1.1 Die ware lengte van die lugdraad EF	5	
1.1.2 Die ware vorm van die daksy ABC	6	
1.1.3 Die ware hoek van die lugdraad met die dakgewel BE t.o.v. die vertikale vlak	2	
	13	
Figuur 1.2 toon ´n isometriese aansig van lynstuk AB. Die lynstuk is parallel met die vertikale vlak en 15 mm voor die vertikale vlak. Punt A en B is onderskeidelik 10 mm en 30 mm vanaf die horisontale vlak. Die ware lengte van lynstuk AB is 40 mm. Maak gebruik van die gegewe X-Y lyn en bepaal:		
1.2.1 Die vooraansig van die lynstuk	4	
1.2.2 Die boaansig van die lynstuk	2	
1.2.3 Die snyspore VS en HS	4	
	10	
Lynwerk en netheid	1	
Totaal	**24**	

Question 1

Figure 1.1 shows the front view and top view of a dwelling and an aerial wire EF. Determine:		
1.1.1 The true length of the aerial wire EF	5	
1.1.2 The true shape of roof side ABC	6	
1.1.3 The true angle between the roof gable BE and the aerial wire with regard to the vertical plane	2	
	13	
Figure 1.2 shows the isometric view of a line segment AB. The line segment is 15 mm in front of the vertical plane and parallel to the vertical plane. Points A and B are 10 mm and 30 mm respectively from the horizontal plane. The true length of line segment AB is 40 mm. Make use of the given X-Y line and determine:		
1.2.1 The front view of the line segment	4	
1.2.2 The top view of the line segment	2	
1.2.3 The traces VT and HT	4	
	10	
Linework and neatness	1	
	24	

TEGNIESE TEKENE
TECHNICAL DRAWING SG 711-2/1

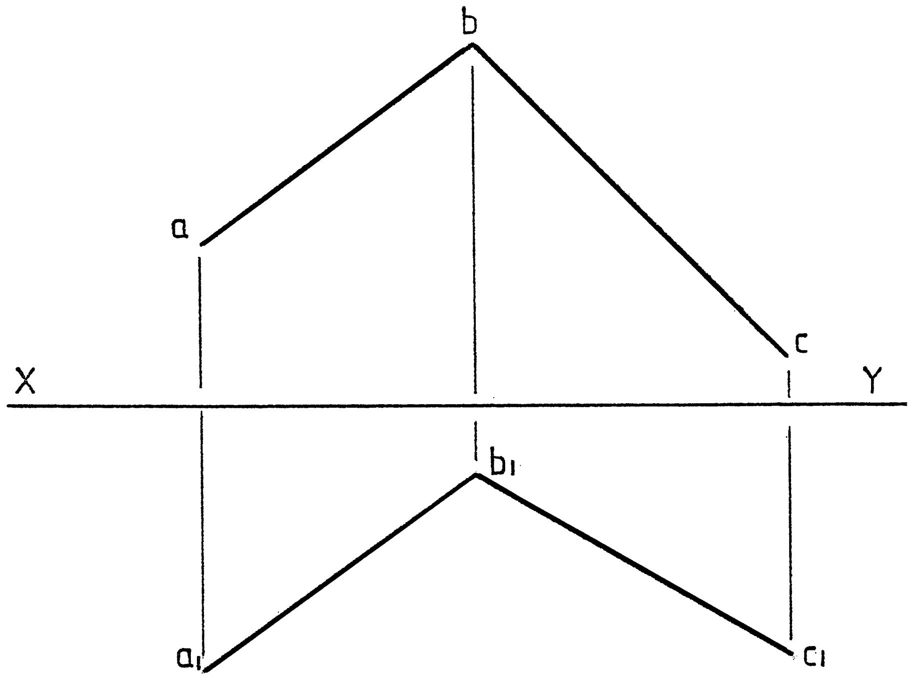


FIG. 2

Vraag 2

Figuur 2 toon die vooraansig en boaansig van lynstukke AB en BC wat in dieselfde vlak lê. Bepaal die ware hoek ABC tussen die twee lynstukke.	13	
Lynwerk en netheid	1	
Totaal	**14**	

Question 2

Figure 2 shows the front view and top view of line segments AB and BC that lies in the same plane. Determine the true angle ABC between the line segments.	13	
Linework and neatness	1	
Total	**14**	

EKSAMENNOMMER
EXAMINATION NO. ____________

ANTWOORDVEL
ANSWER SHEET 2

VRAAG
QUESTION 2

TEGNIESE TEKENE
TECHNICAL DRAWING SG 711-2/1

VERPLASINGSDIAGRAM
DISPLACEMENT DIAGRAM

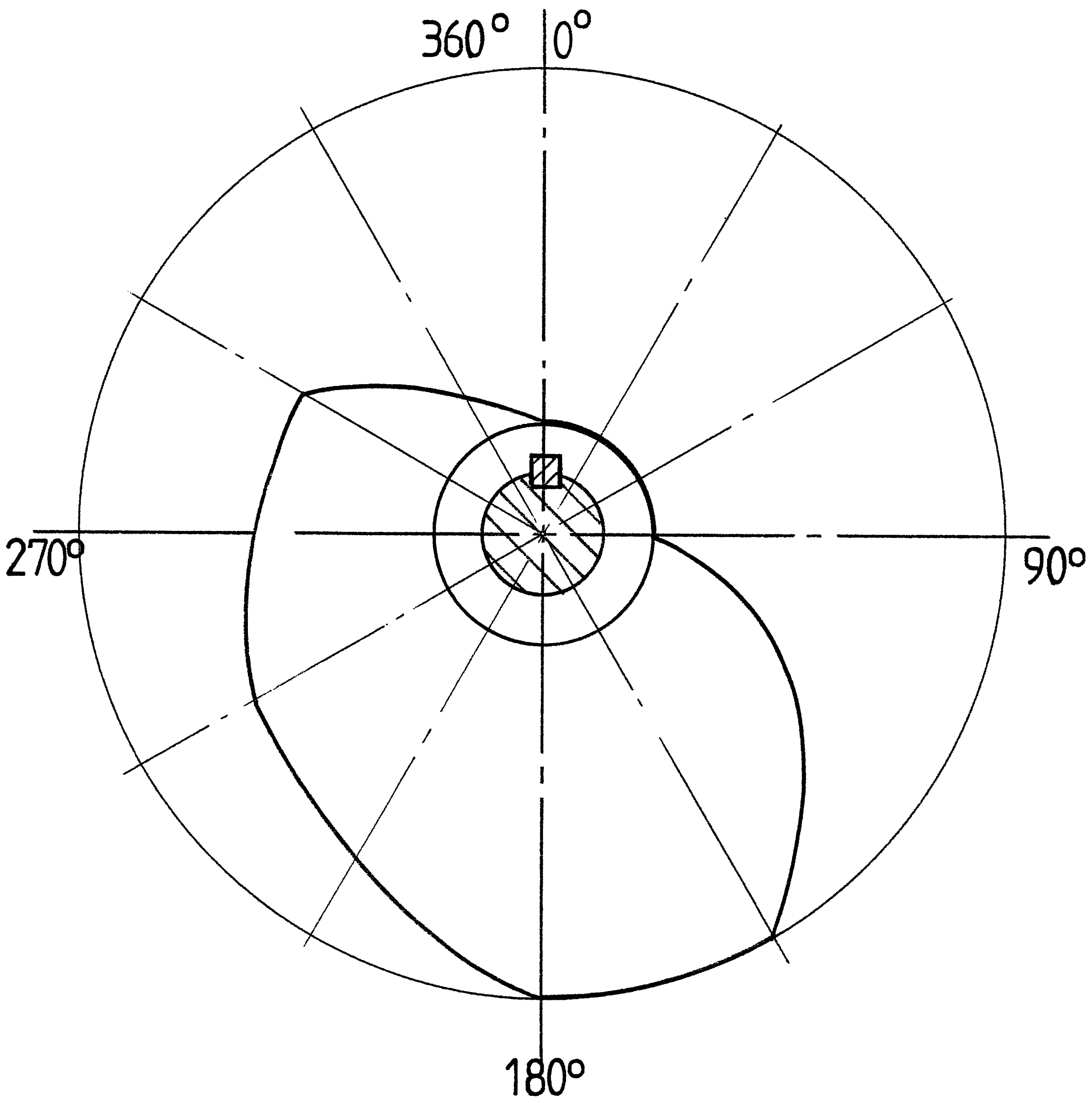


FIG. 3

Vraag 3

Figuur 3 toon die nokprofiel van ´n wigvormige nokvolger. Bepaal: 3.1 Die voltooide verplasingsdiagram 3.2 Die draairigting.(Dui draairigting met behulp van ´n pyltjie aan).	 13 2	
Lynwerk en netheid	1	
Totaal	**16**	

Question 3

Figure 3 shows the cam profile of a wedge shaped cam follower. Determine: 3.1 The completed displacement diagram 3.2 The direction of rotation. (Indicate direction by means of an arrow).	 13 2	
Linework and neatness	1	
Total	**16**	

EKSAMENNOMMER
EXAMINATION NO.

ANTWOORDVEL
ANSWER SHEET 3

VRAAG
QUESTION 3

TEGNIESE TEKENE
TECHNICAL DRAWING SG 711-2/1

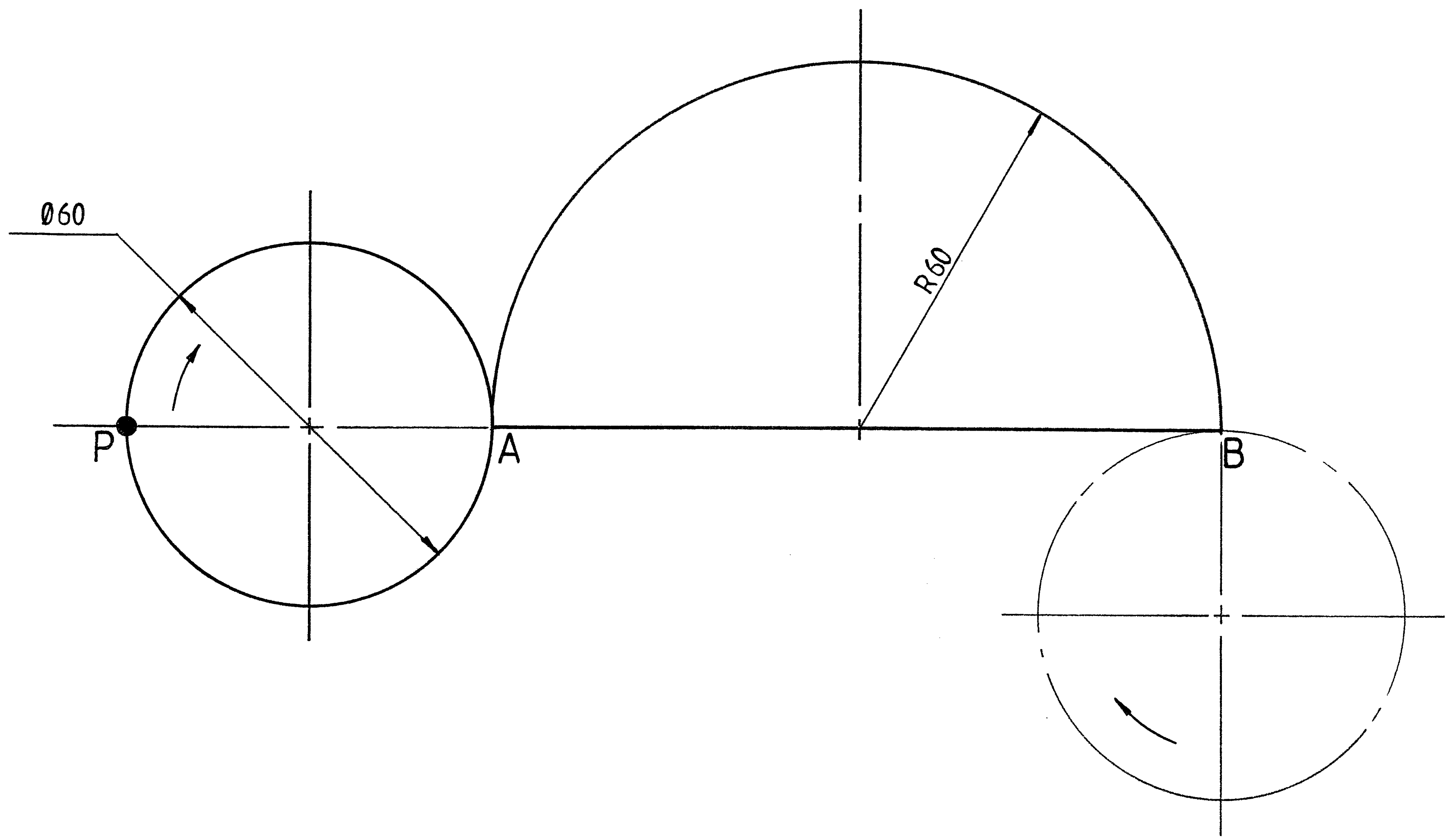


FIG. 4

Vraag 4

Figuur 4 toon ´n skyf asook die baan waarop dit moet rol. Bepaal: 4.1 Die lokus van punt P wanneer die skyf op die ronde baan rol vir een omwenteling vanaf punt A tot by B. 4.2 Die lokus van punt P wanneer die skyf vir ´n verdere halwe omwenteling rol op die reguit baan vanaf punt B in die rigting van A. (Toon alle berekenings).	18 10	
Lynwerk en netheid	1	
Total	**29**	

Question 4

Figure 4 shows a disc as well as the surface on which it rolls. Determine: 4.1 The locus of point P if the disc rolls for one revolution on the curved surface from point A to B. 4.2 The locus of point P if the disc rolls for a further half a revolution on the straight surface from point B in the direction of A. (Show all calculations).	18 10	
Linework and neatness	1	
Total	**29**	

EKSAMENNOMMER
EXAMINATION NO. ____________

ANTWOORDVEL
ANSWER SHEET 4

VRAAG
QUESTION 4

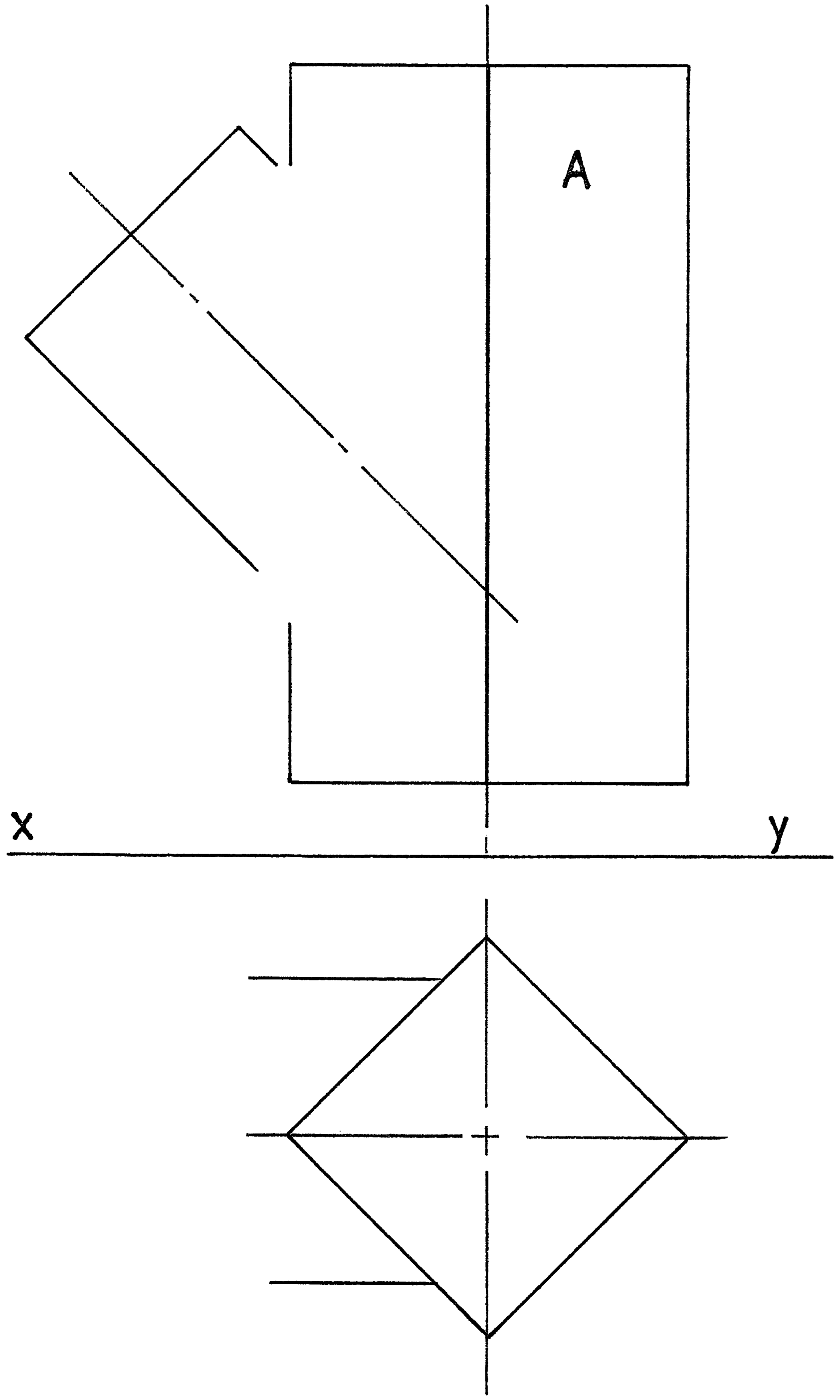


FIG. 5

TEGNIESE TEKENE
TECHNICAL DRAWING SG 711-2/1

Vraag 5

Figuur 5 toon die vooraansig en onvoltooide boaansig van 'n ronde pyp wat 'n vierkantige prisma deurdring. Projekteer: 5.1 Die voltooide boaansig. 5.2 Die deurdringingskromme in die vooraansig. 5.3 Die oppervlaksontwikkeling van die hoofpyp **A** wat die gat toon	 3 8 13	
Lynwerk en netheid	1	
Totaal	**25**	

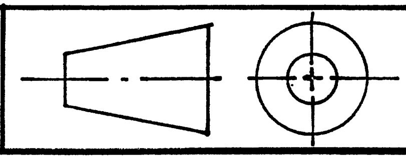
Question 5

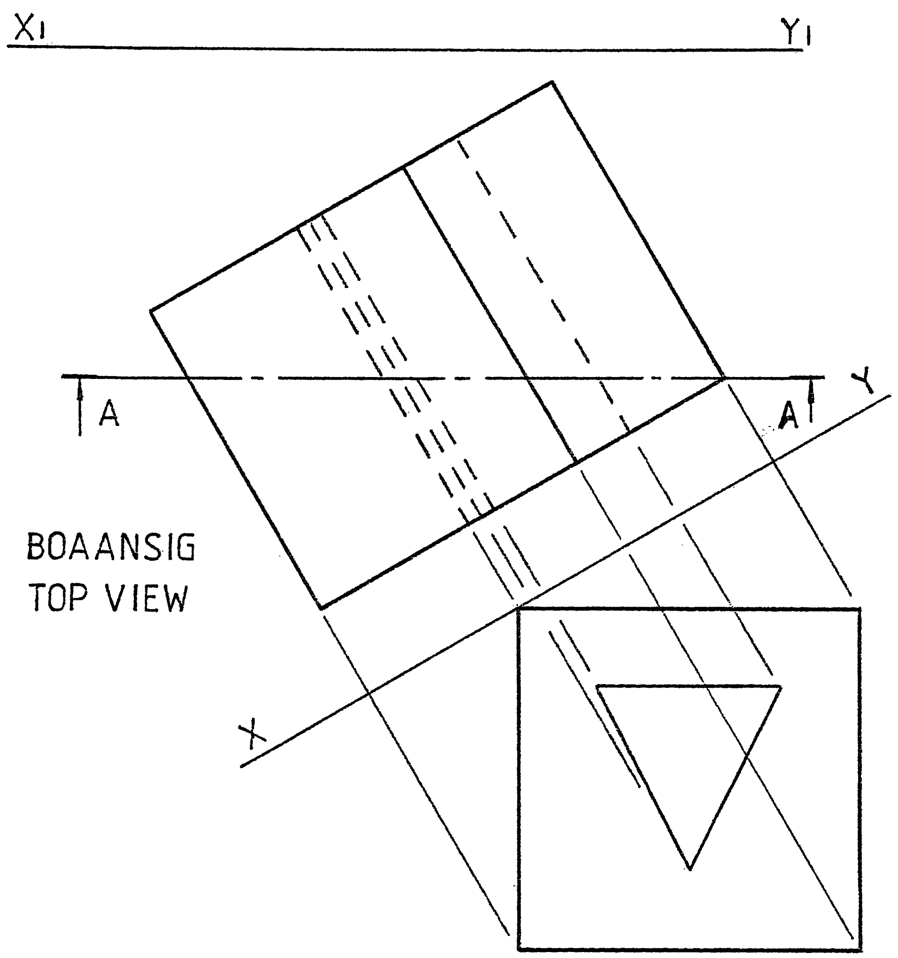
Figure 5 shows the front view and incompleted top view of a round pipe penetrating a square prism.Project: 5.1 The completed top view. 5.2 The curve of interpenetration in the front view. 5.3 The surface development of the main pipe **A** that shows the hole	 3 8 13	
Linework and neatness	1	
Total	**25**	

EKSAMENNOMMER
EXAMINATION NO. ______

ANTWOORDVEL
ANSWER SHEET 5

VRAAG
QUESTION 5





HULPAANSIG /
AUXILIARY VIEW

FIG. 6.1

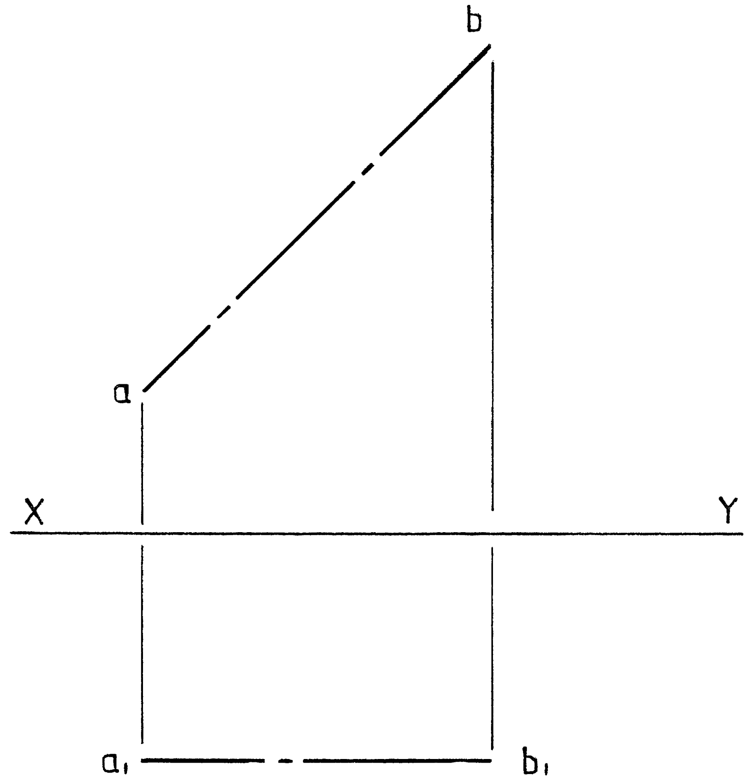


FIG. 6.2

TEGNIESE TEKENE
TECHNICAL DRAWING SG 711-2/1

Vraag 6

Figuur 6.1 toon die boaansig en hulpaansig van ´n vierkantige bousteen. Projekteer die deursnee vooraansig op snyvlak A-A. Figuur 6.2 toon die hartlyne van ´n reëlmatige seskantige piramide. Die basis sye van die piramide is 20 mm lank en parallel met die vertikale vlak. Die toppunt is by punt B. Maak gebruik van die gegewe inligting en projekteer die vooraansig en boaansig van die piramide.	15 13	
Lynwerk en netheid	1	
Totaal	**29**	

Question 6

Figure 6.1 shows the top view and auxiliary view of a square building block. Project a sectional front view on cutting plane A-A. Figure 6.2 shows the centre lines of a regular hexagonal pyramid. The base sides are 20 mm long and parallel to the vertical plane. The apex is at point B. Make use of the given information and project the front view and top view of the pyramid.	15 13	
Linework and neatness	1	
Total	**29**	

EKSAMENNOMMER
EXAMINATION NO. ______

ANTWOORDVEL
ANSWER SHEET 6

VRAAG
QUESTION 6

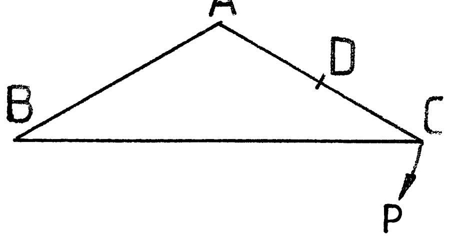


FIG 7

TEGNIESE TEKENE
TECHNICAL DRAWING
SG 711-2/1

Vraag 7

Figuur 7 toon ′n driehoek. ′n Toutjie met ′n onbeduidende dikte is om die driehoek vasgedraai en vasgesteek by **punt D**. Bepaal die lokus van die eindpunt van die toutjie (**punt P**) wanneer die toutjie losdraai vanaf die driehoek en daarna weer om die driehoek vasdraai.	12	
Lynwerk en netheid	1	
Totaal	**13**	

Question 7

Figure 7 shows a triangle. A piece of string of negligible thickness is tied around the triangle and fixed at **point D**. Determine the locus described by the end of the string (**point P**) as it unwinds from the triangle and thereafter winds onto the triangle again.	12	
Line work and neatness	1	
Total	**13**	

EKSAMENNOMMER
EXAMINATION NO. ______

ANTWOORDVEL
ANSWER SHEET 7

VRAAG
QUESTION 7