higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T590**(E)**(A8)T

NATIONAL CERTIFICATE

ENGINEERING DRAWING N3

(8090283)

8 April 2019 (X-Paper)
09:00–13:00

REQUIREMENTS: ONE A2 drawing sheet

This question paper consists of 10 pages.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
ENGINEERING DRAWING N3
TIME: 4 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Read ALL the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Use both sides of the DRAWING SHEET.
5. Draw a 15 mm border on both sides of the DRAWING SHEET.
6. Only the candidate information on the drawing sheet must be done in ink. ALL other drawing work must be done in pencil.
7. A radius curve stencil may be used to draw smaller arcs.
8. Unspecified radii must be R3.
9. A balanced layout is very important and candidates will be penalised for poor planning.
10. ALL drawing work must conform to the latest SANS 10111 Code of Practice for Engineering Drawing.
11. Work neatly.

MARK ALLOCATION

QUESTION 1: FREEHAND DRAWING		**[10]**
	Correctness	4
	Line work	3
	Accuracy and proportion	3
QUESTION 2: SECTIONAL DRAWING		**[25]**
2.1	Correctness – full-sectional front view	6
2.2	Correctness – full-sectional right view	5
2.3	Correctness – top view	6
	Line work	3
	Accuracy	3
	Layout and neatness	2
QUESTION 3: ASSEMBLY DRAWING		**[30]**
	Correctness	18
	Line work	5
	Accuracy	5
	Layout and neatness	2
QUESTION 4: DETAIL DRAWING		**[20]**
4.1	Correctness – full-sectional front view (Item 1)	7
4.2	Correctness – full-sectional front view (Item 1)	5
	Line work	3
	Accuracy	3
	Layout and neatness	2
QUESTION 5: ISOMETRIC PROJECTION		**[15]**
	Correctness	8
	Line work	2
	Accuracy	2
	Scale	2
	Layout and neatness	1
	TOTAL:	**100**

QUESTION 1: FREEHAND DRAWING

FIGURE 1 shows a view of a component.

Make a freehand drawing of the given view approximately full size.

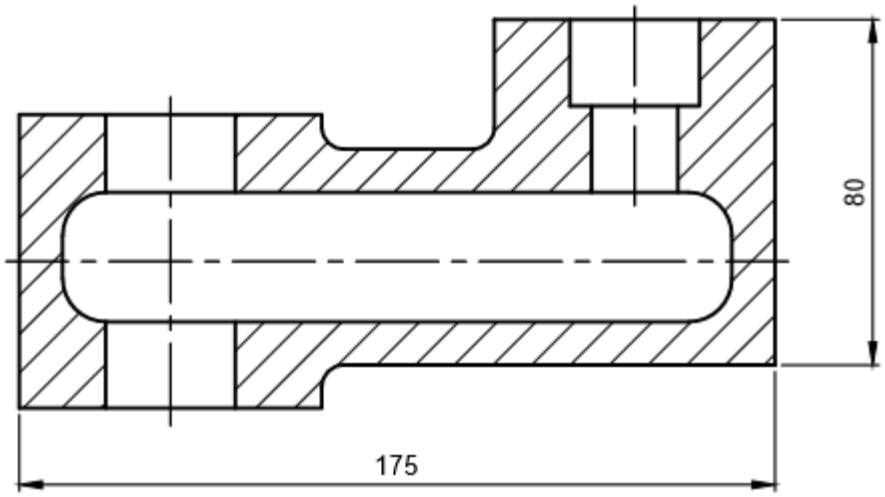


FIGURE 1 **[10]**

QUESTION 2: SECTIONAL DRAWING

FIGURE 2 shows two primary views of a bracket.

Draw, to scale 1:2, the following views of the component in third-angle orthographic projection:

2.1 A full-sectional front view on cutting plane X-X (8)

2.2 A full-sectional right view (8)

2.3 A top view (9)

NO hidden detail is necessary.

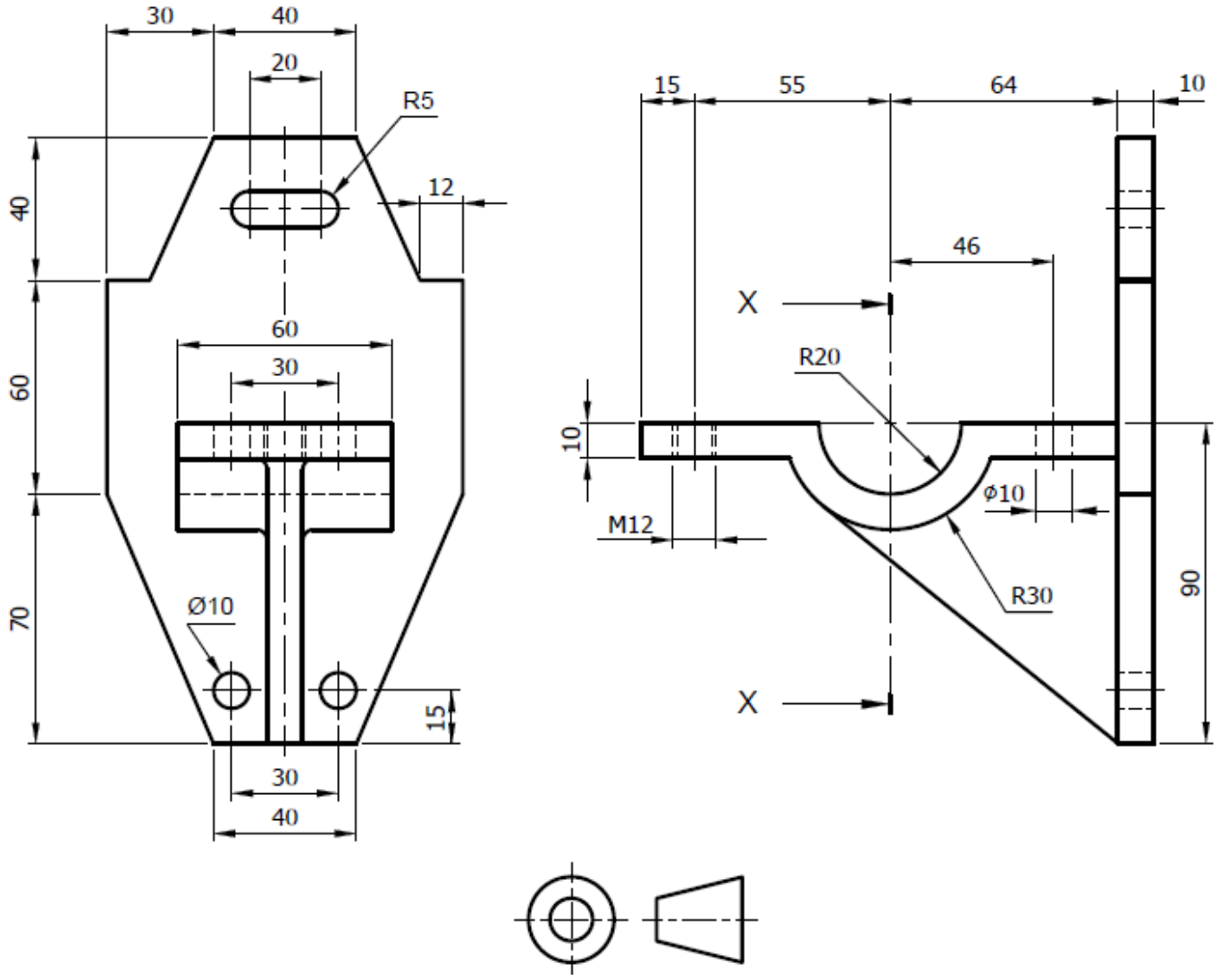


FIGURE 2 **[25]**

QUESTION 3: ASSEMBLY DRAWING

FIGURE 3 shows the primary views of the components of a pulley assembly.

The complete list of parts is as follows:

ITEM	DESCRIPTION	QUANTITY
1	Frame	1
2	Pulley	1
3	Shaft	1
4	Spacer	1
5	Pin	1
6	Washer	1
7	M12 hexagonal nut	1

Draw, to scale 1:1, a full-sectional front view of the pulley assembly as an assembly drawing.

&

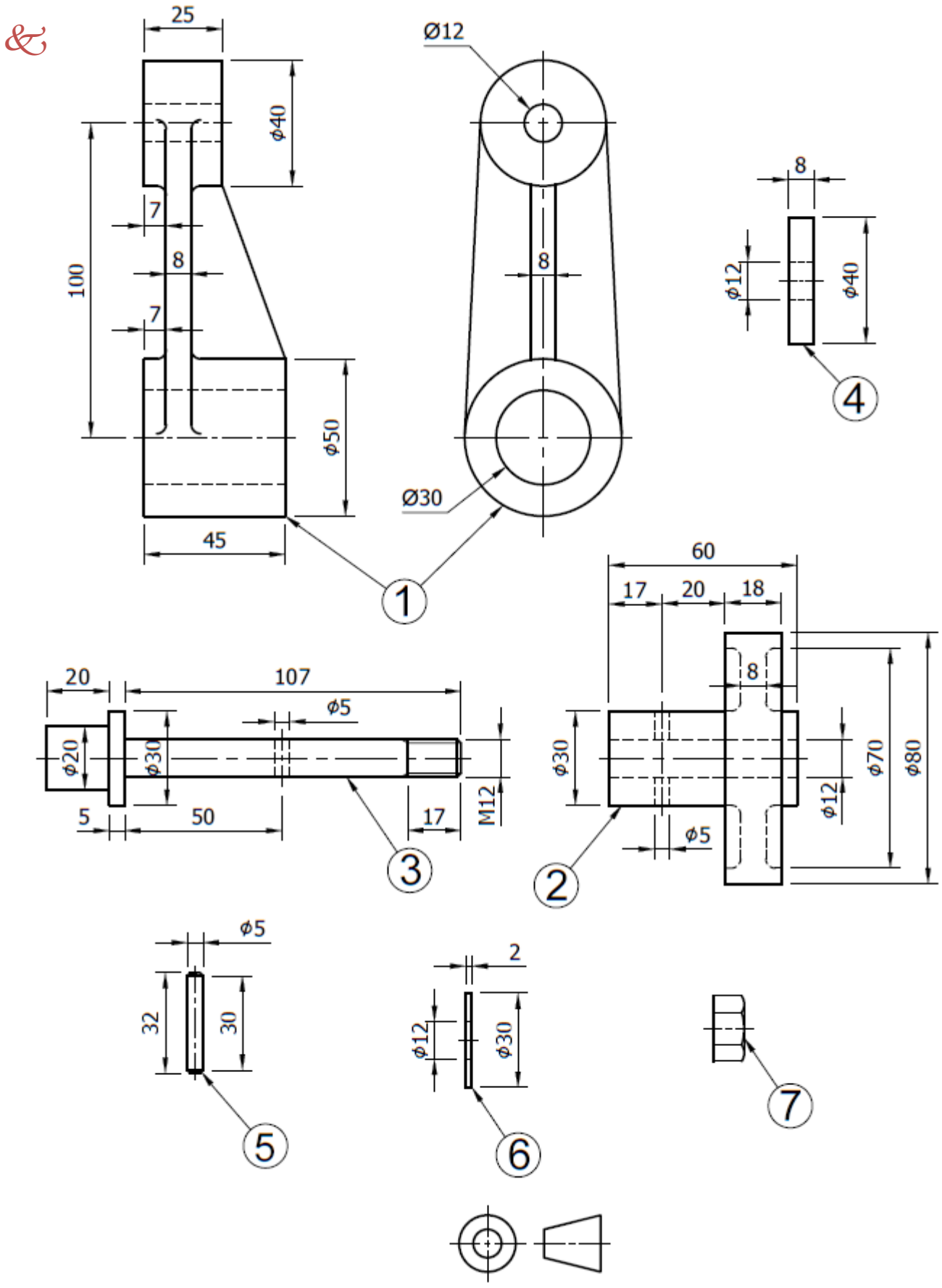


FIGURE 3 **[30]**

QUESTION 4: DETAIL DRAWING

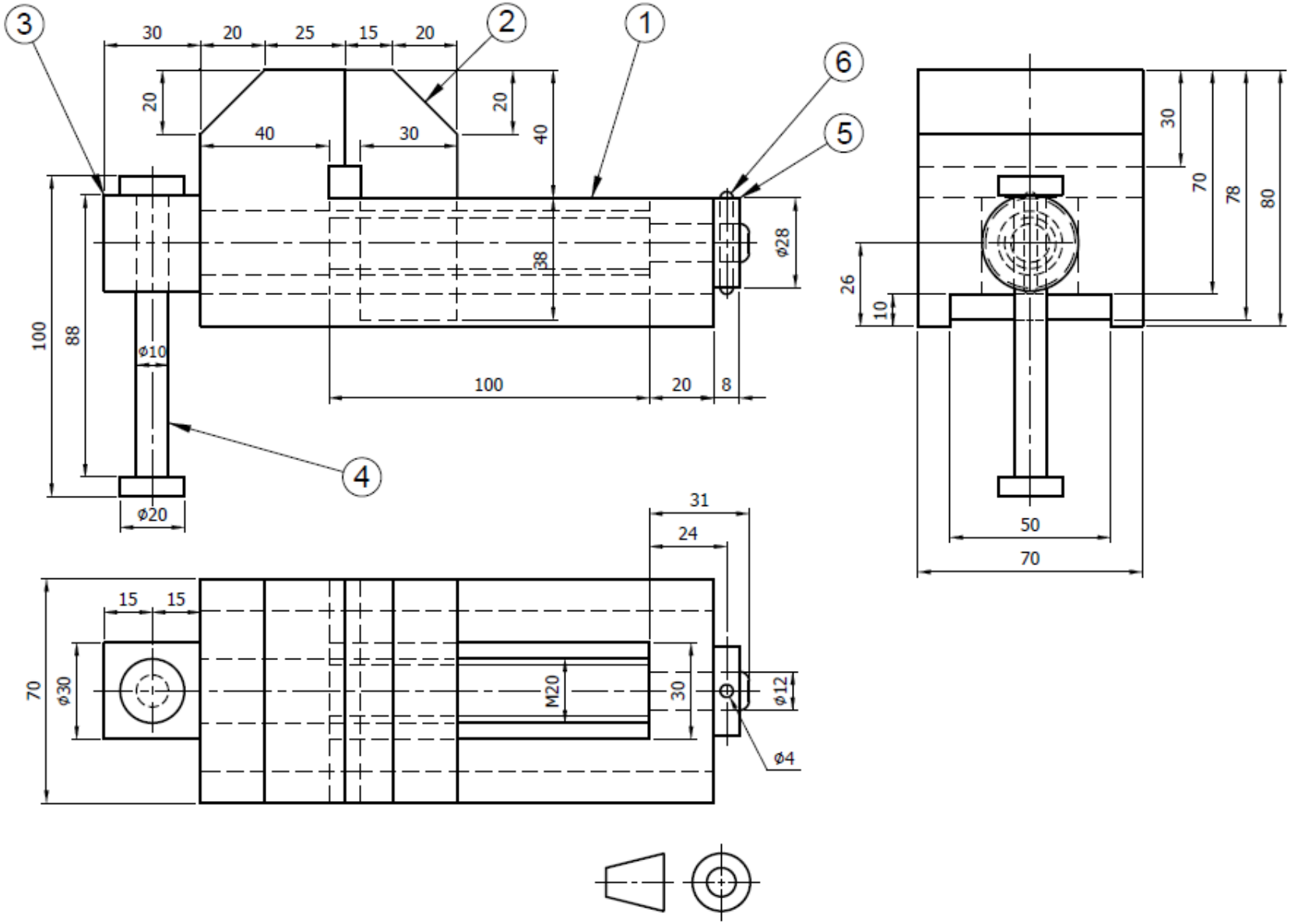
FIGURE 4 shows the primary views of a machine-vice assembly.

Draw, to scale 1:1, detailed drawings of the following items:

4.1 The base (Item 1) showing a full-sectional front view (11)

4.2 The movable jaw (Item 2) showing a full-sectional front view (9)

NO hidden detail is necessary.


3
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70
ø30
M20
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ø12
ø4

FIGURE 4 **[20]**

QUESTION 5: ISOMETRIC PROJECTION

FIGURE 5 shows the primary views of a geometric model. &

Construct an isometric scale and then draw an isometric projection of the model. NO hidden detail is necessary.

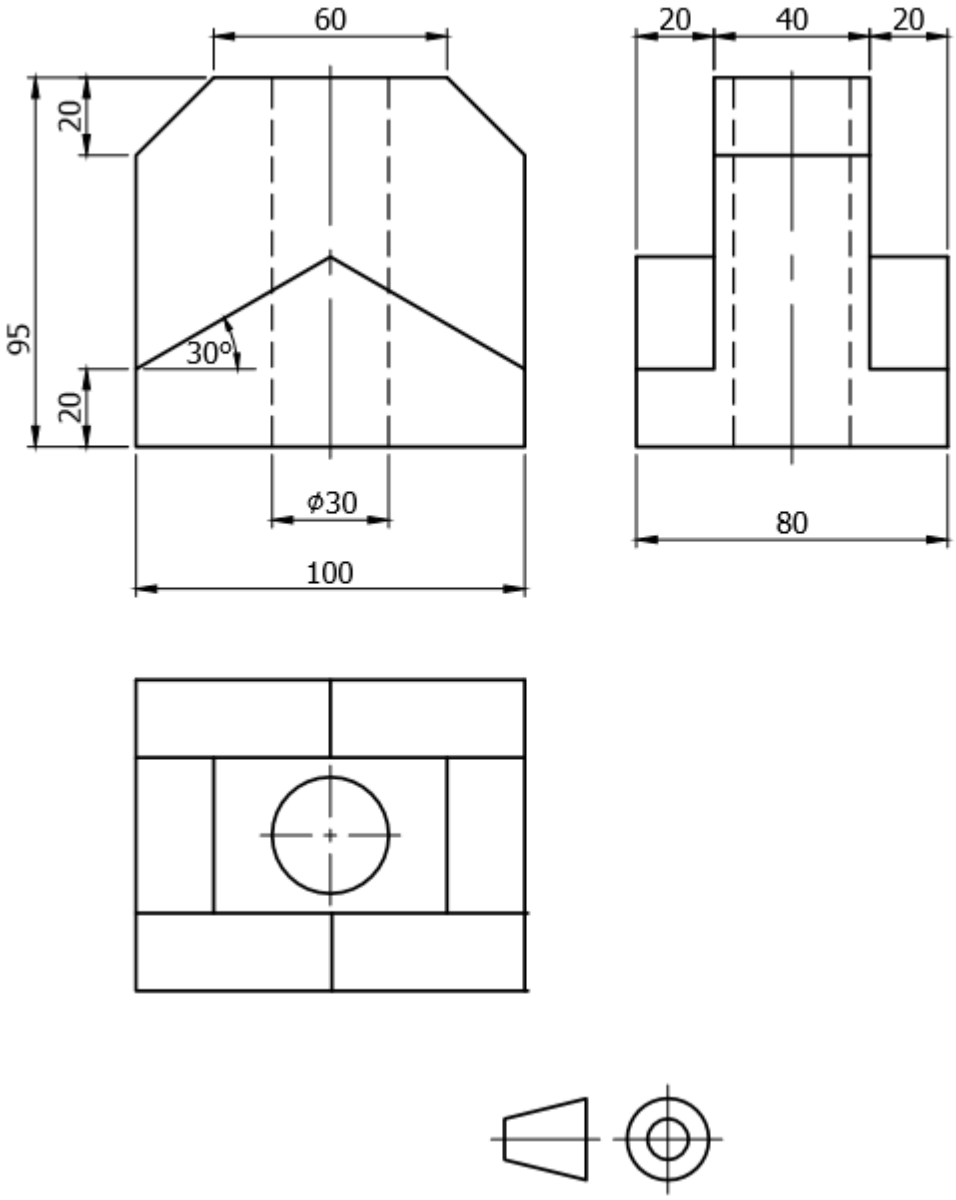

FIGURE 5

& **[15]**

TOTAL: 100