

1301/312  
1304/312  
1305/312  
TECHNICAL DRAWING  
June/July 2012  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL  
CRAFT CERTIFICATE IN CARPENTRY AND JOINERY  
CRAFT CERTIFICATE IN MASONRY  
CRAFT CERTIFICATE IN PLUMBING

TECHNICAL DRAWING

3 hours

**INSTRUCTIONS TO CANDIDATES**

*You should have the following for this examination:*

*Answer booklet*

*Drawing instruments*

*Drawing paper size A<sub>2</sub>*

*Answer any FIVE of the following EIGHT questions.*

*All questions carry equal marks.*

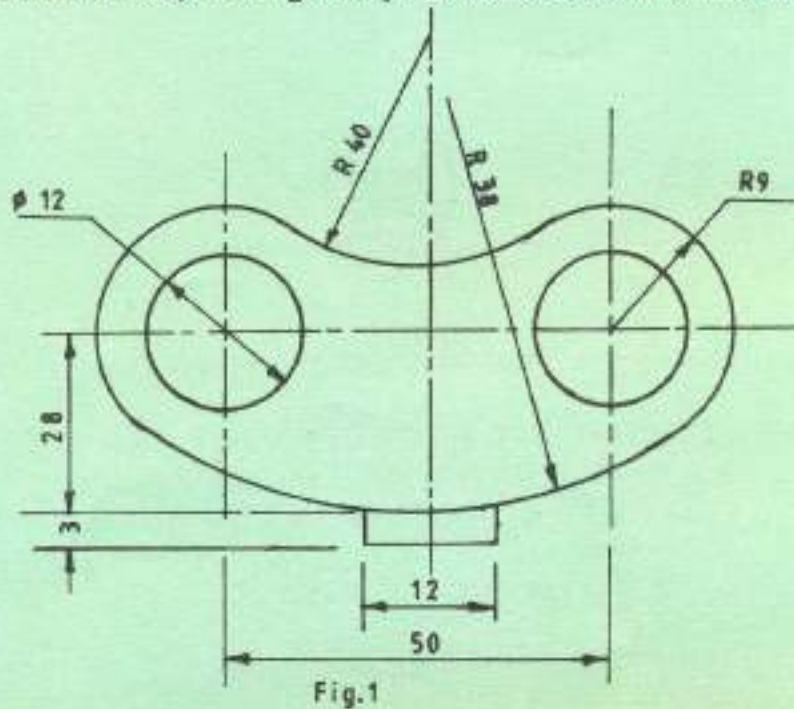
*Maximum marks for each part of a question are as shown.*

*All dimensions are in millimeters.*

**This paper consists of 8 printed pages.**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

1. (a) Using a pair of compass and ruler only, construct a triangle ABC with sides AB = 55mm, AC = 40 mm and angle BAC 75°. (5 marks)
- (b) Figure 1 shows an elevation of the turning handle of a can opener. Draw this view TWICE FULL SIZE, showing clearly the method of establishing the centres of the arcs. (10 marks)



(10 marks)

- (c) Construct a diagonal scale of 25 mm to represent 1 m which can be used to measure m and 10 mm up to 6 m. Show the dimensions of 4 m, 320 mm and 3m 630 mm on the scale. (5 marks)

(5 marks)

2. (a) Make free hand sketches of the following tools:

- (i) Inside callipers;
- (ii) Tenon saw;
- (iii) Hand file;
- (iv) Firmer chisel.

(8 marks)



- (b) Figure 2 shows three views of an object drawn in first angle projection. Draw the object in isometric making  $x$  the lowest point. (12 marks)

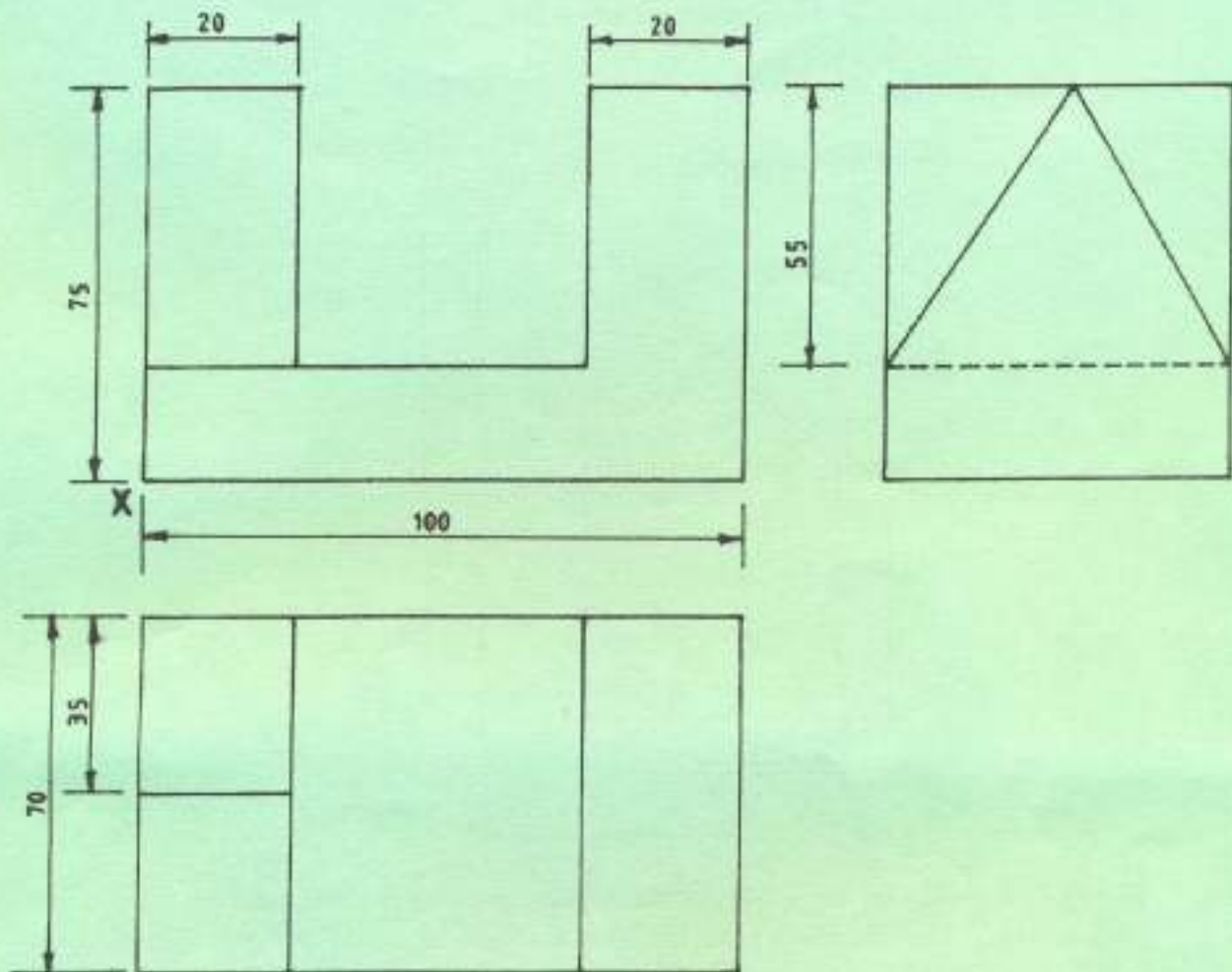


Fig. 2

3. (a) Figure 3 shows the front elevation of a truncated hexagonal prism. Using first angle projection, draw the following:

- (i) Plan;
- (ii) End elevation in the direction of arrow E.E.;
- (iii) Development of the prism;
- (iv) True shape of the cut portion.

(20 marks)

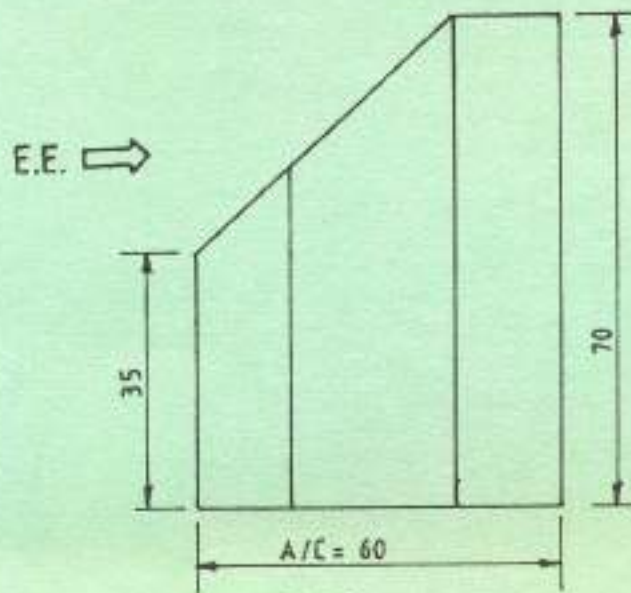


Fig 3

4. (a) Figure 4 shows the layout of a crank mechanism in which A travels along a straight line as the crank OB rotates about point O. Draw the locus of point C for one revolution of crank OB.

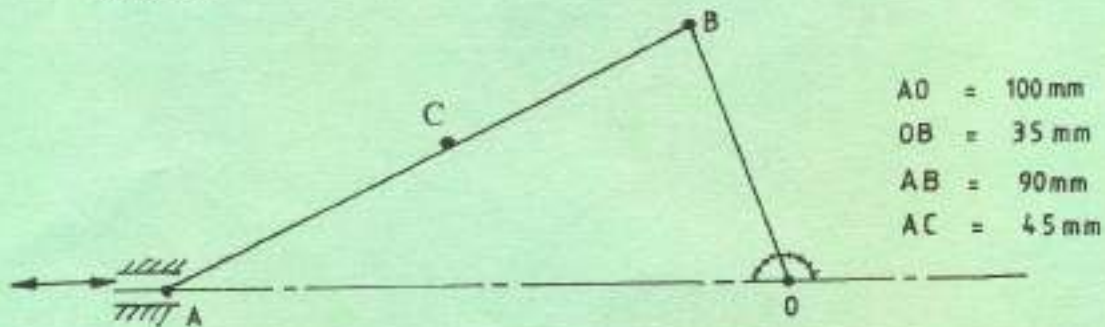


Fig. 4

(12 marks)



- (b) Construct a triangle equal in area to the rectangle shown in figure 5 and inscribe a circle on the triangle.

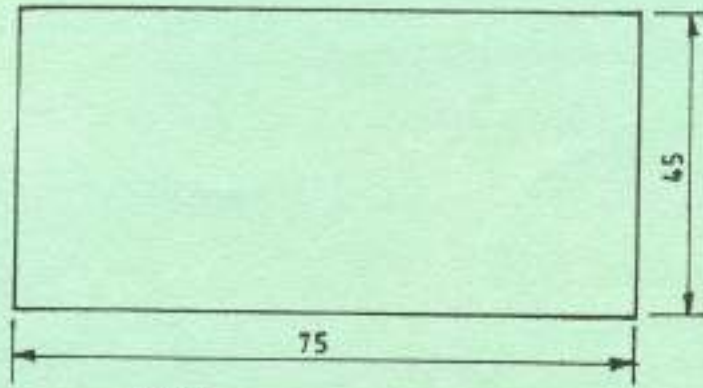


Fig. 5

(8 marks)

5. Figure 6 shows a hexagonal prism intersecting a square pyramid. Draw the following in first angle projection.

- (i) Line of interpenetration;
- (ii) End of elevation in direction E.E.;
- (iii) Plan.

(20 marks)

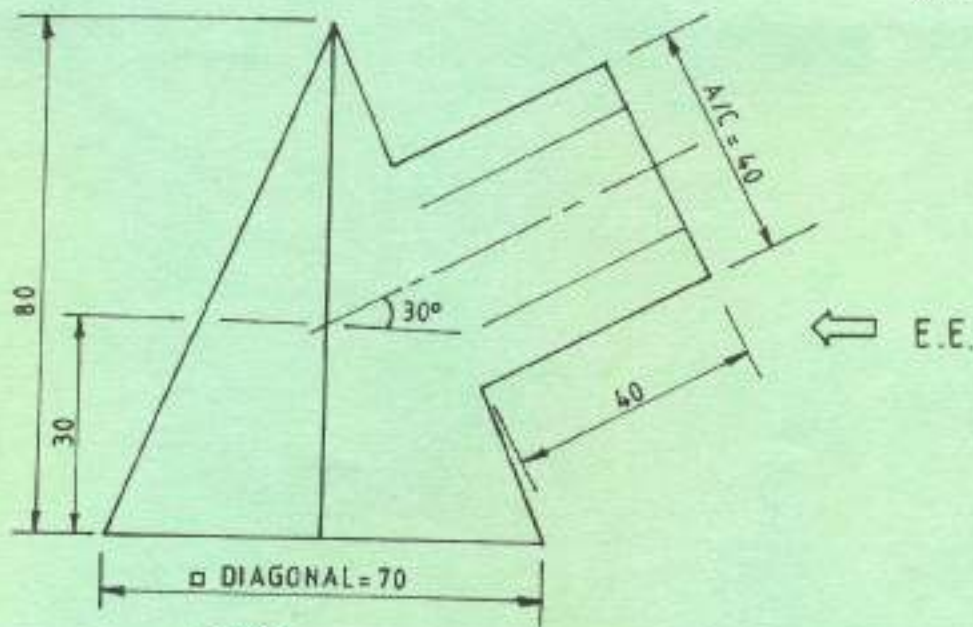


Fig. 6

6. Figure 7 shows a machine bearing drawn in isometric. Draw the following using first angle projection twice full scale:-

- (i) Front elevation in the direction F.E.;
- (ii) End elevation in the direction E.E.;
- (iii) Plan.

Indicate six dimensions.

(20 marks)

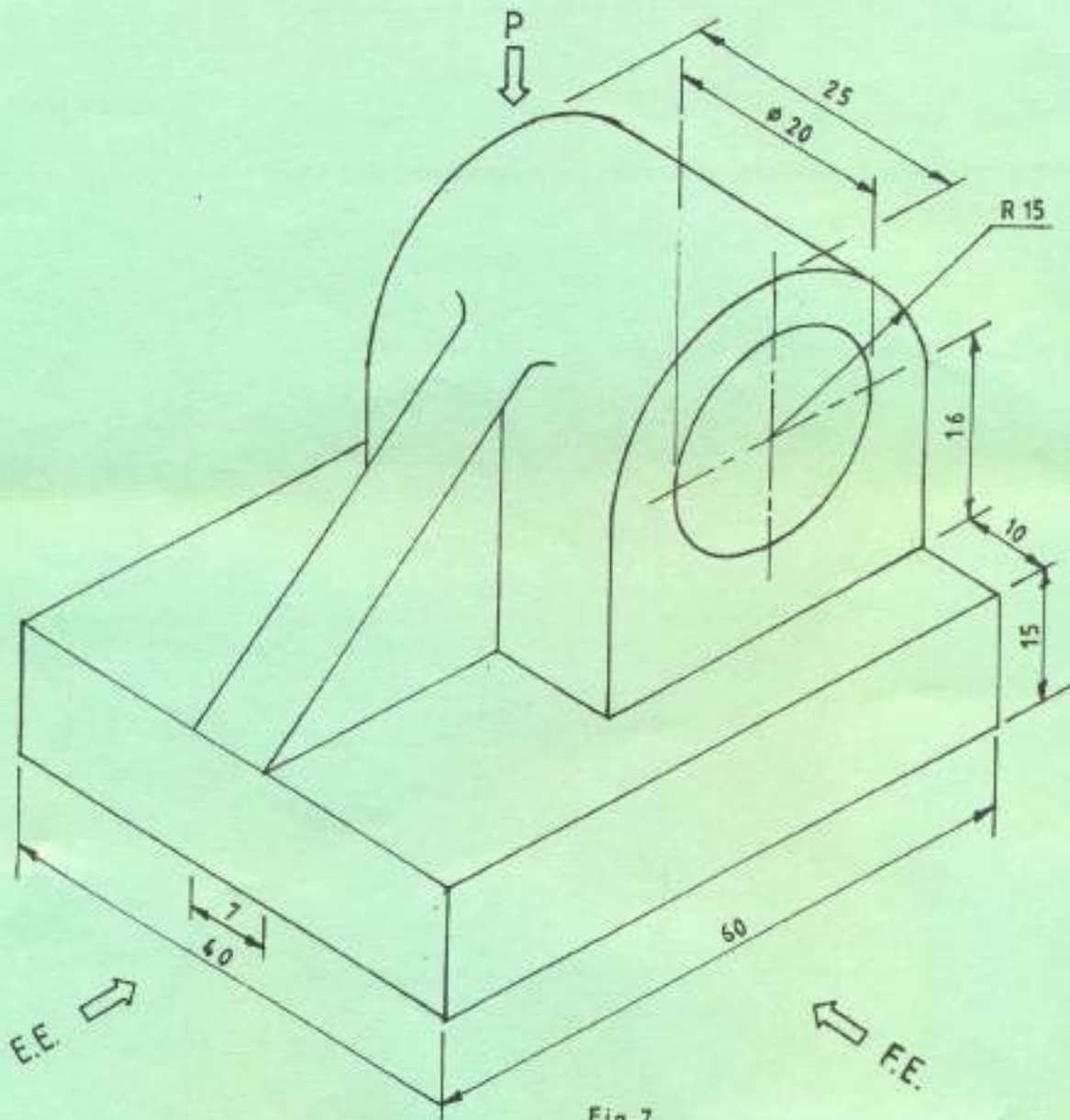


Fig.7



7. Figure 8 shows the plan of a garage attached to the main house. Using a scale of 1:20 draw section "A-A" from the foundation to the eaves given the following data:
- Foundation - strip 600 x 200 mm, 900 mm below ground level.
  - Walls - blockwork 225 mm thick.
  - Floor - oversite concrete slab 150 mm with cement / sand screed.
  - Window - steel casement 750 mm height.
  - Roof - lean-to towards window pitch  $30^\circ$  and timber frame covered with plain tiles.
  - Floor to ceiling height - 2500 mm.  
Assume any information not given.

(20 marks)

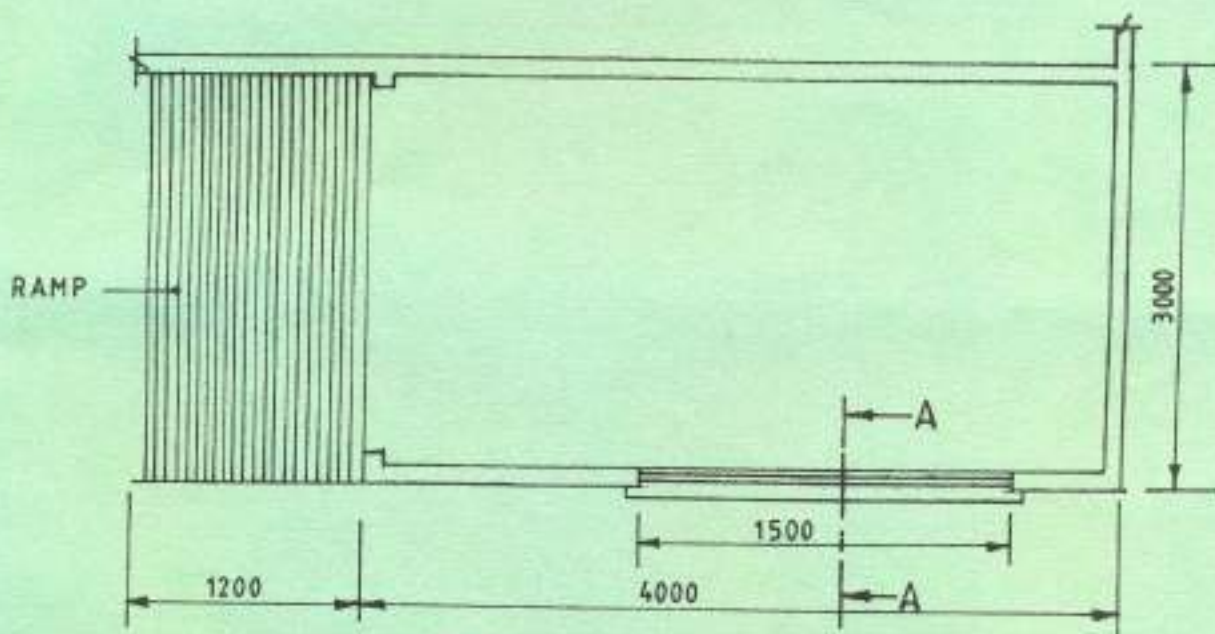


Fig.8

8. Figure 9 shows two views of a machine block drawn in third angle projection. Draw the block in oblique cabinet projection. (20 marks)

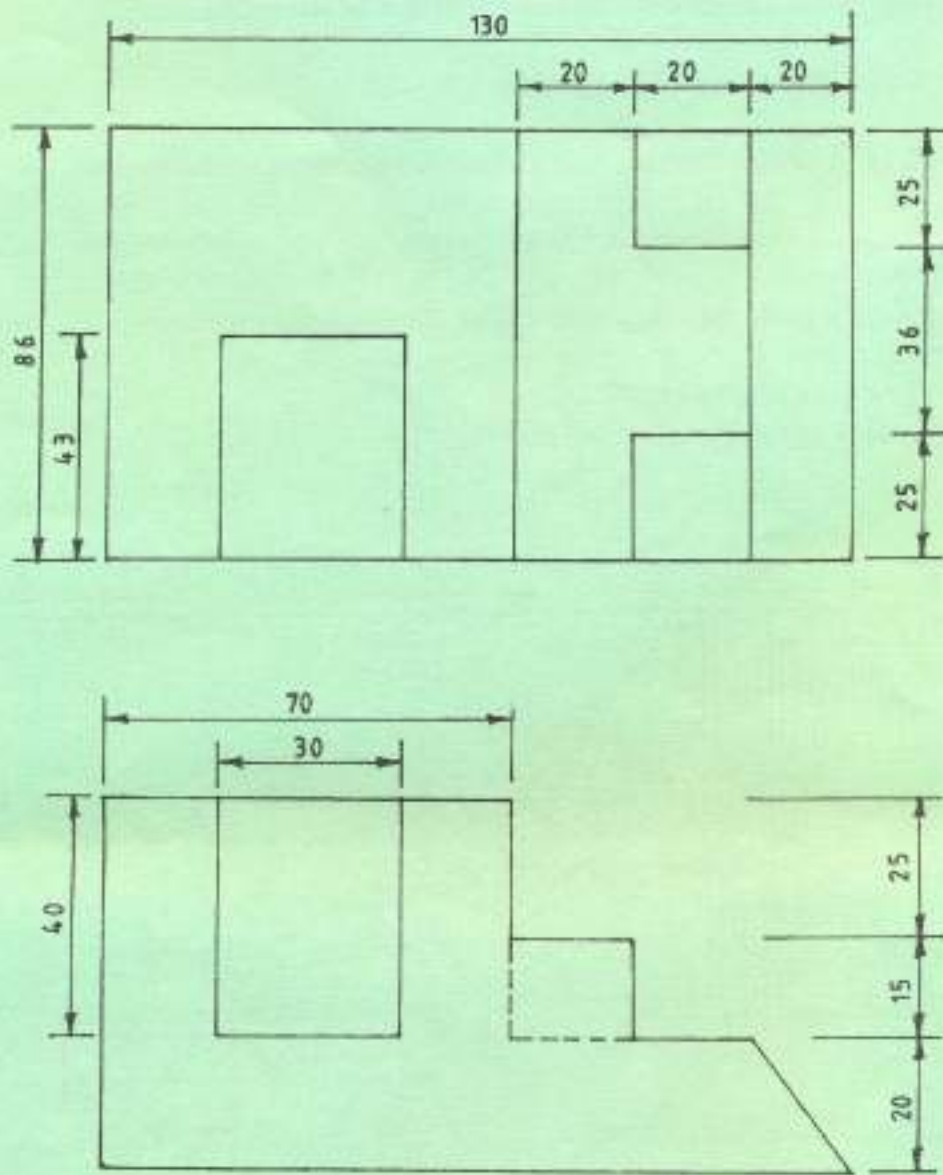


Fig.9