

1301/312

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1305/312

TECHNICAL DRAWING

June/July 2016

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**CRAFT IN CARPENTRY AND JOINERY
CRAFT IN MASONRY
CRAFT IN PLUMBING**

TECHNICAL DRAWING

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Drawing papers;

Drawing instruments;

A scientific calculator;

Answer booklet.

*This paper consists of **EIGHT** questions.*

*Answer **FIVE** questions.*

All questions carry equal marks.

Maximum marks for each part of a question are indicated.

Candidates should answer the questions in English.

This paper consists of 7 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) Draw an Octagon in a circle of a diameter 70 mm. (5 marks)
 - (b) Construct a Square of diagonal 100 mm. (3 marks)
 - (c) Construct a triangle ABC having sides, AB = 80 mm, BC = 90 mm, CA = 70 mm and circumscribe a circle to it. (7 marks)
 - (d) Draw a triangle given the perimeters as 150 mm and side's ratio as 2:3:4. (5 marks)
2.
 - (a) Through construction, determine the centre of a circle of 50 mm radius. (3 marks)
 - (b) Using the concentric circle method, draw an ellipse whose major and minor axis are 120 mm and 50 mm respectively. (7 marks)
 - (c) Construct a common internal and external tangents to the circles X and Y, to touch circle X on the right hand side in **Figure 1**. (10 marks)

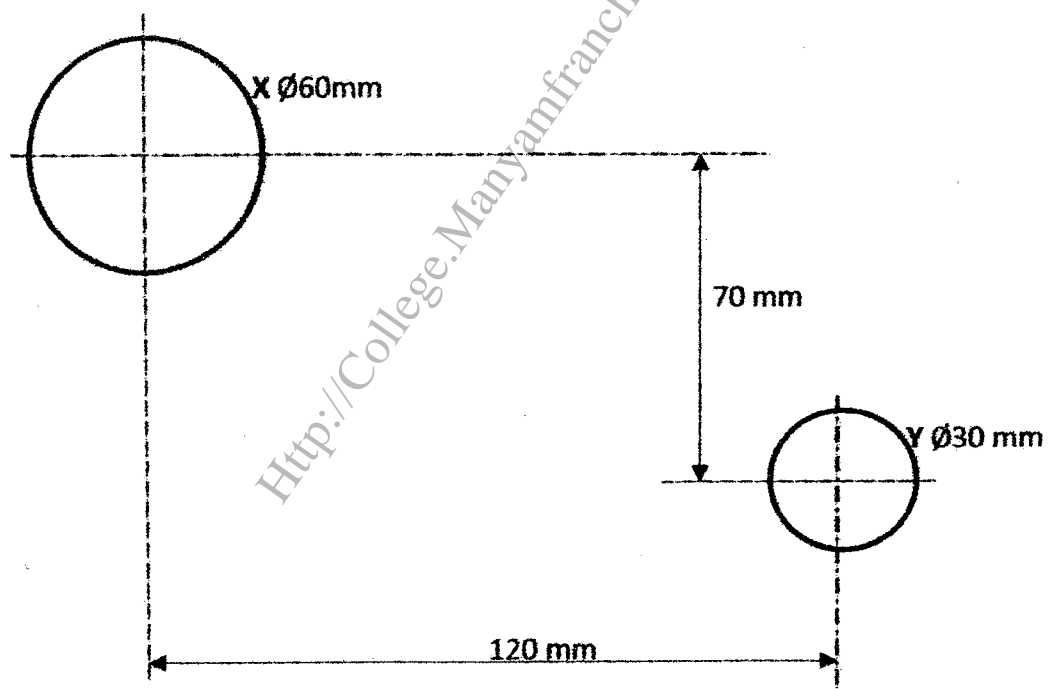
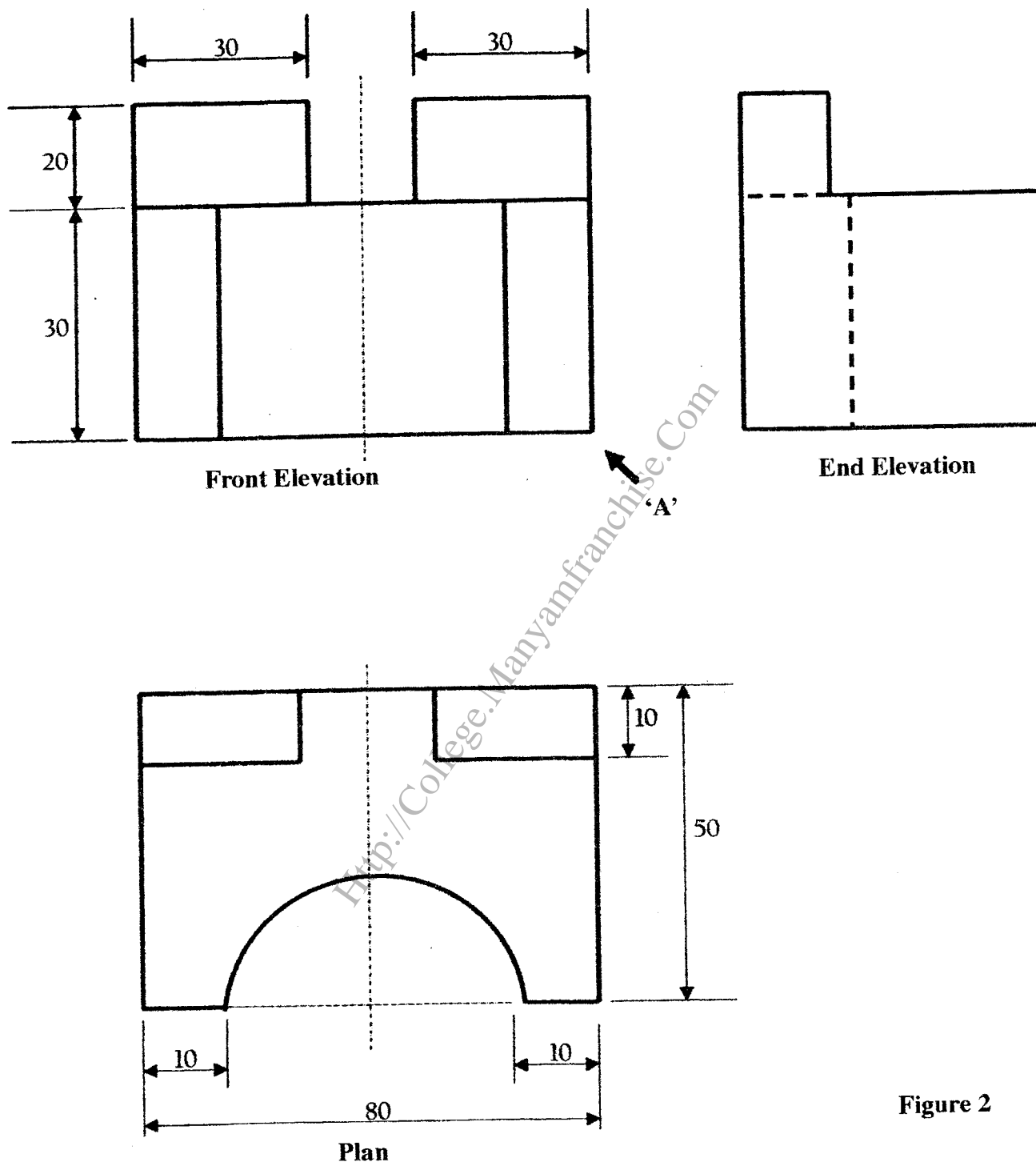


Figure 1

3. (a) Reproduce **figure 2** in isometric projection in the direction of arrow 'A'. (15 marks)



- (b) Construct a rectangle given the length of its diagonal as 90 mm and length of the longer side as 80 mm. (5 marks)

4. (a) Construct an equilateral triangle of side 100 mm and inscribe three equal circles to touch each other and two sides of the triangle. (10 marks)
- (b) Draw a rectangle ABCD of sides 80 mm and 50 mm and convert into a square of equal area. (6 marks)
- (c) Construct triangle ABC of sides $AB = 80$ mm, $BC = 50$ mm, $AC = 90$ mm and reduce its sides by the ratio 5:7. (4 marks)
5. (a) Draw a full size oblique projection of the shaped block shown in figure 3. (14 marks)

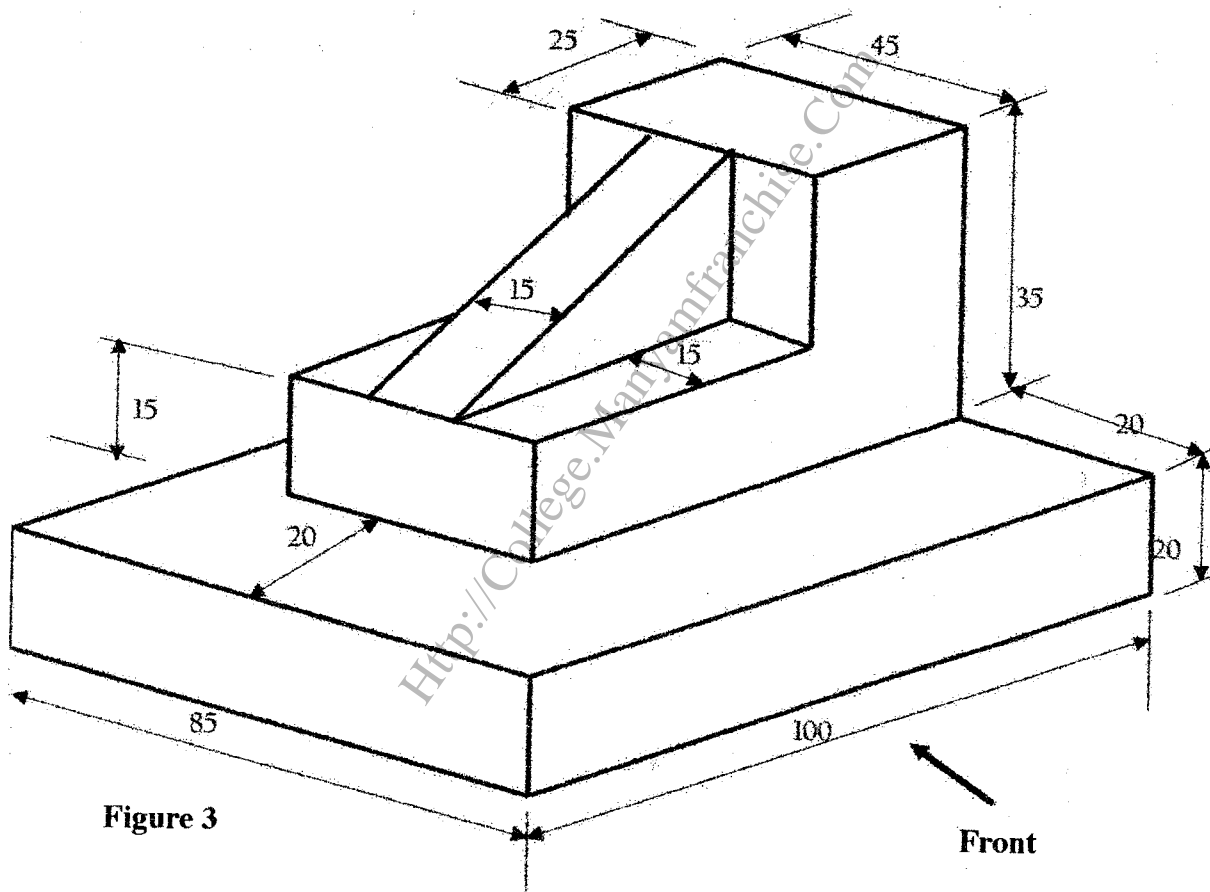
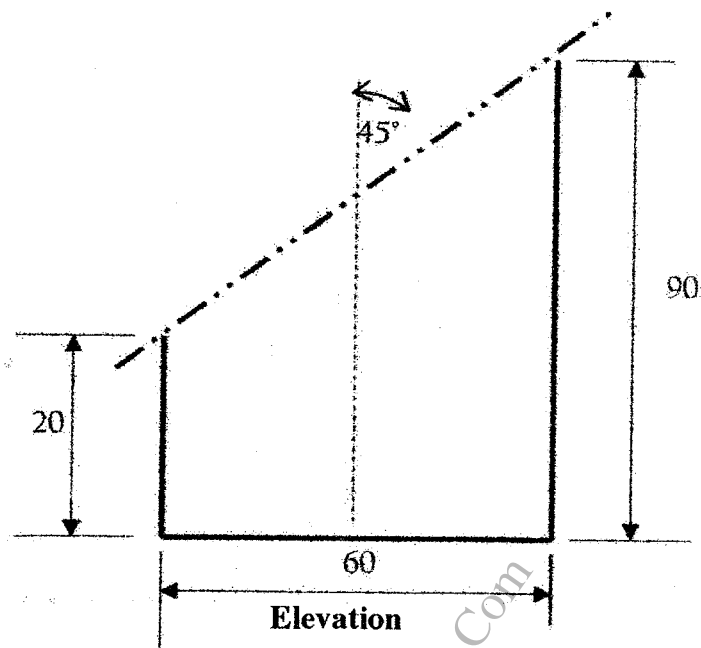


Figure 3

- (b) Construct a regular Pentagon in a circle of 60 mm diameter. (6 marks)
6. (a) Figure 4 shows a truncated cylinder. Copy the given view and draw the true shape of the cut surface. (6 marks)

Figure 4

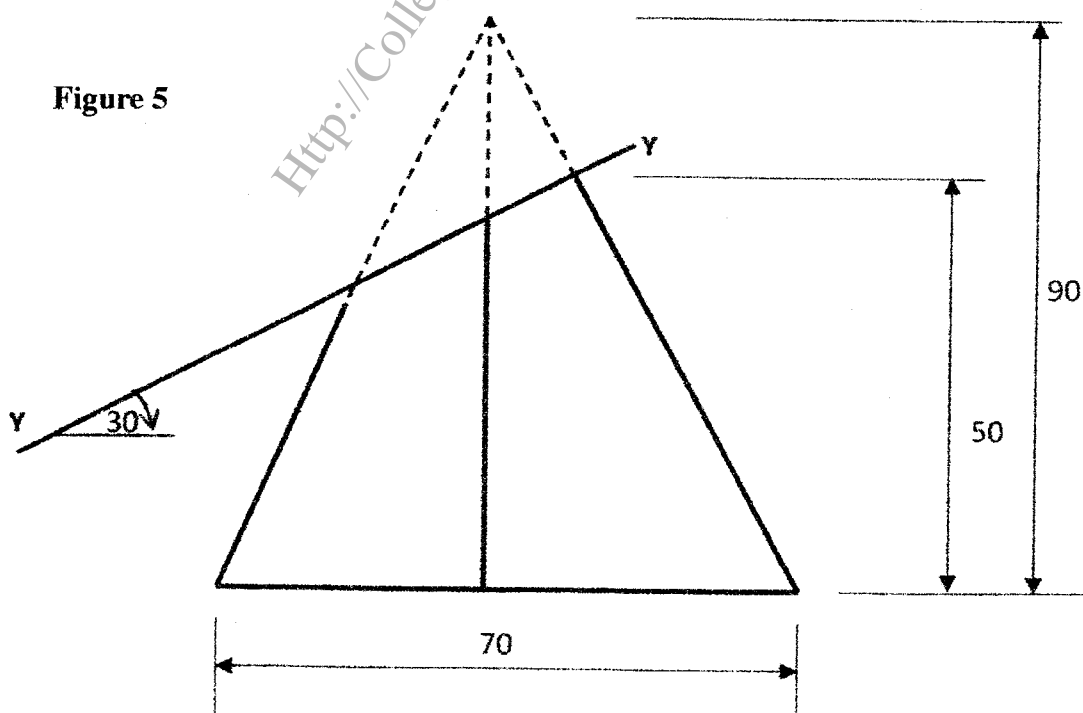


(b) **Figure 5** shows the elevation of a truncated hexagonal pyramid, cut by plane Y-Y.

Draw:

- (i) the given elevation;
- (ii) the full plan;
- (iii) left end elevation.

(14 marks)



7. By use of free-hand, sketch the casting shown in **figure 6** with 'X' as the lowest point and show all the dimensions. (20 marks)

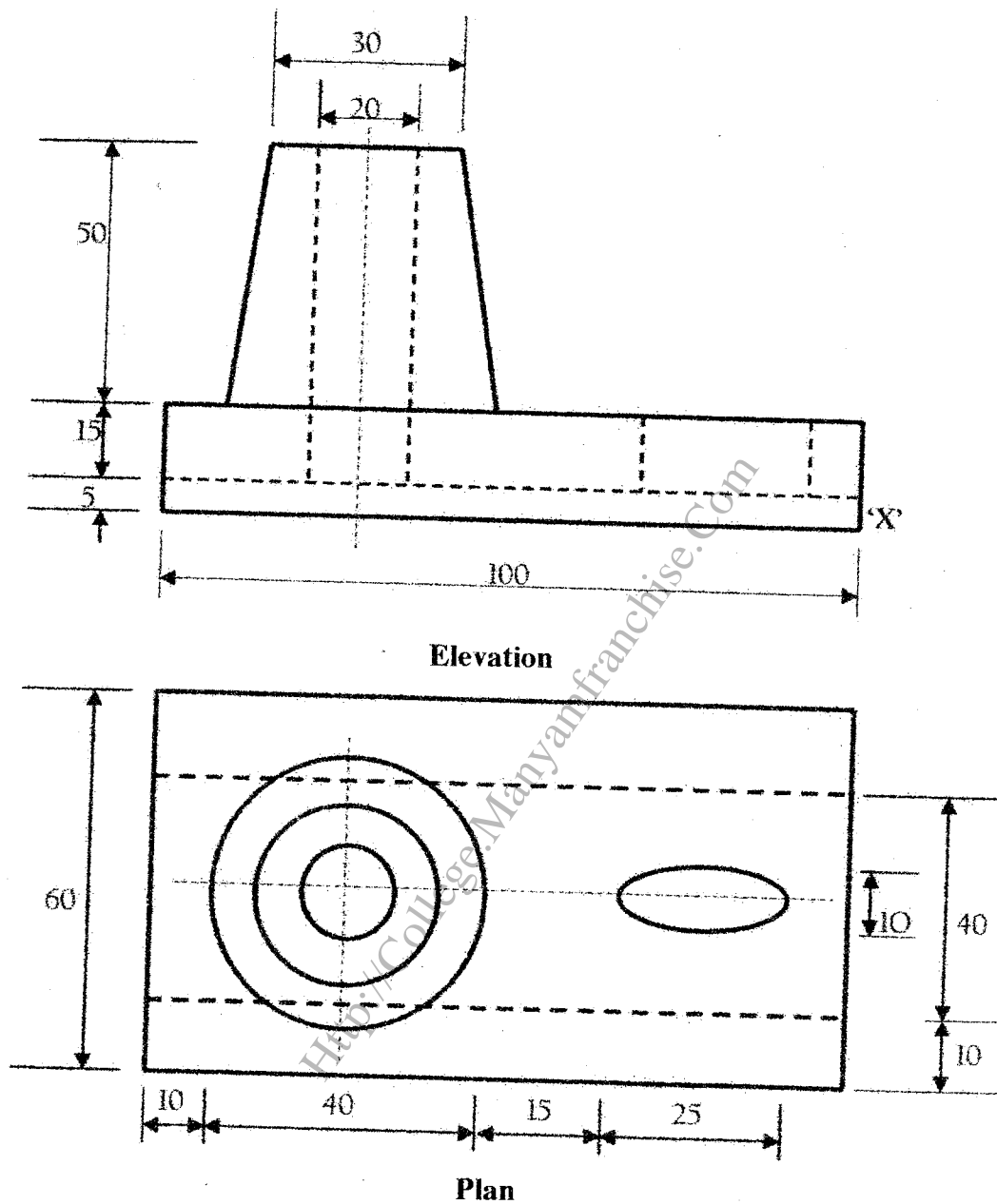


Figure 6

8. (a) Sketch any two of the following tools:

- (i) plumb bob;
- (ii) wood float;
- (iii) claw hammer.

(6 marks)

(b) To scale of 1:2 draw in third angle projection, the plan, left and front elevations of the block shown in **figure 7**.

(14 marks)

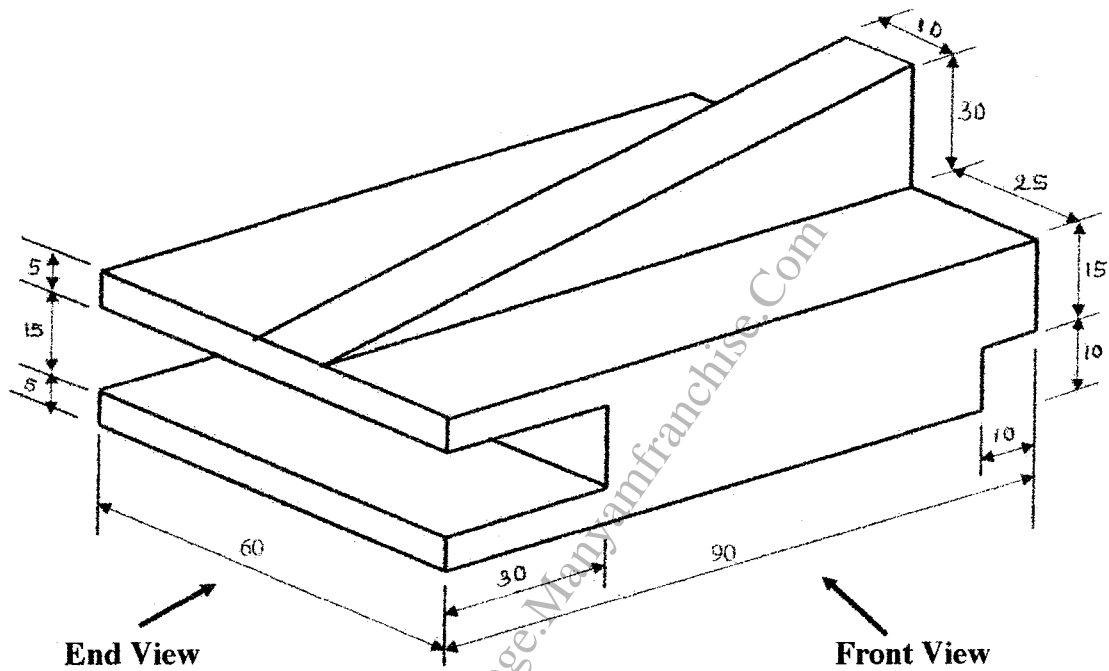


Figure 7

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