School of Mechanical & Manufacturing Engineering (SMME),

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Lab Report – Orthographic Projections

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Course: Engineering Drawing and Graphics

Program: BE Aerospace

Introduction

For an engineer, engineering drawing is an essential part of design and communication. Isometric drawings are used to communicate a 3D design, however orthographic drawings—which are 2D projections of the isometric view—offer more details about the drawing. The goal of the assignment was to use AutoCAD to draw three orthographic views—top, front, and side—of three isometric drawings provided.

Tools

Basic drawing tools

Basic tools such as the line, rectangle, and circle commands etc. were used along with basic features like mirroring, trimming, filleting to create the views.

Layers

The layer properties allowed for better organization to the drawing by separating different elements of the drawings into different layers. Separated layers were created for:

- Solid lines
- Hidden lines
- Center lines
- Center marks
- Dimensions

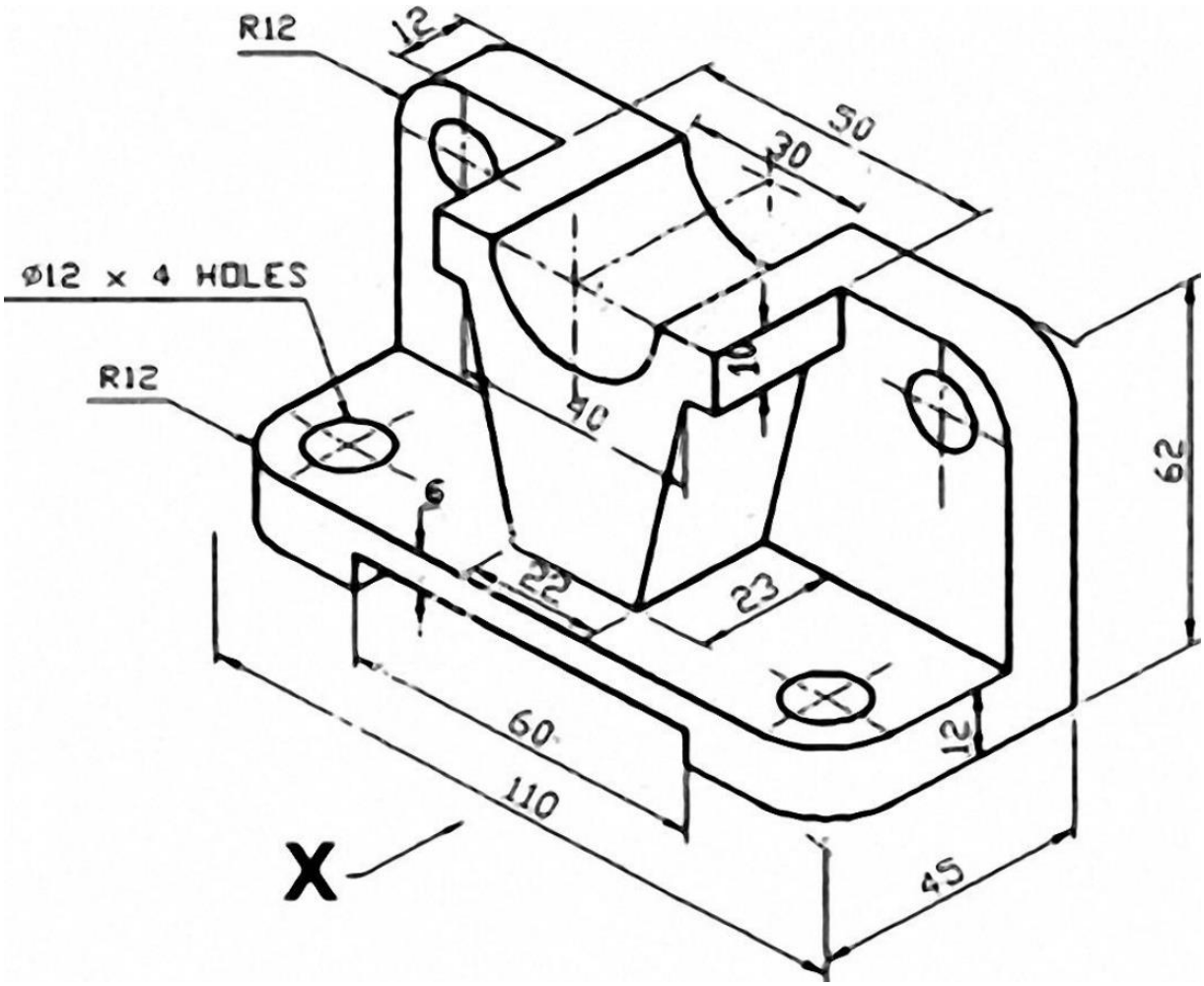
and were color coded in order to make the drawings more manageable.

Snap and Grid setting

The snap and grid setting greatly helped to maintain precision while creating and aligning the views. The settings allowed elements to snap to easy-to-locate points such as midpoints, endpoints, tangents, and angles, allowing for accurate placement and alignment of objects.

Dimension Style

This tool allowed aspects of the dimensions such as text and arrows size, appearance, and color to be adjusted It brought neatness to the final look of the views, as well as helped to ensure consistency throughout the drawings.



Drawing #1

Orthographic views - Drawing #1

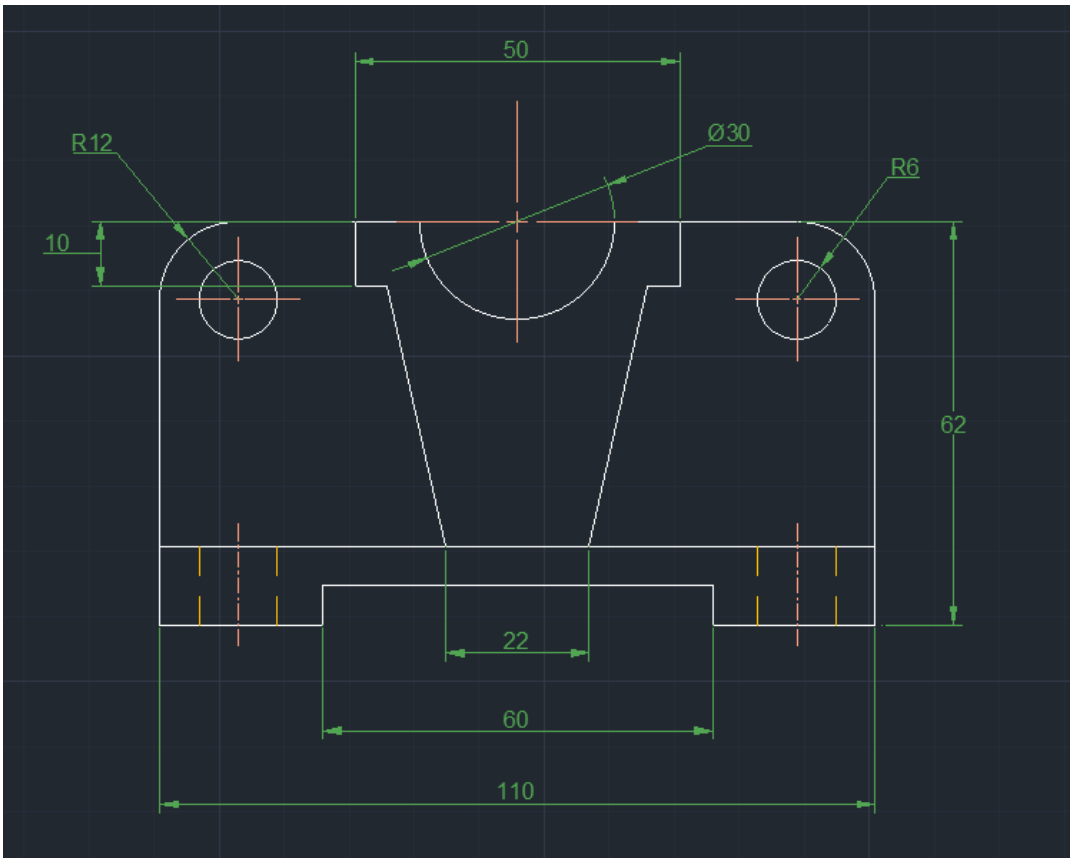


Figure 1: Front view - Drawing #1

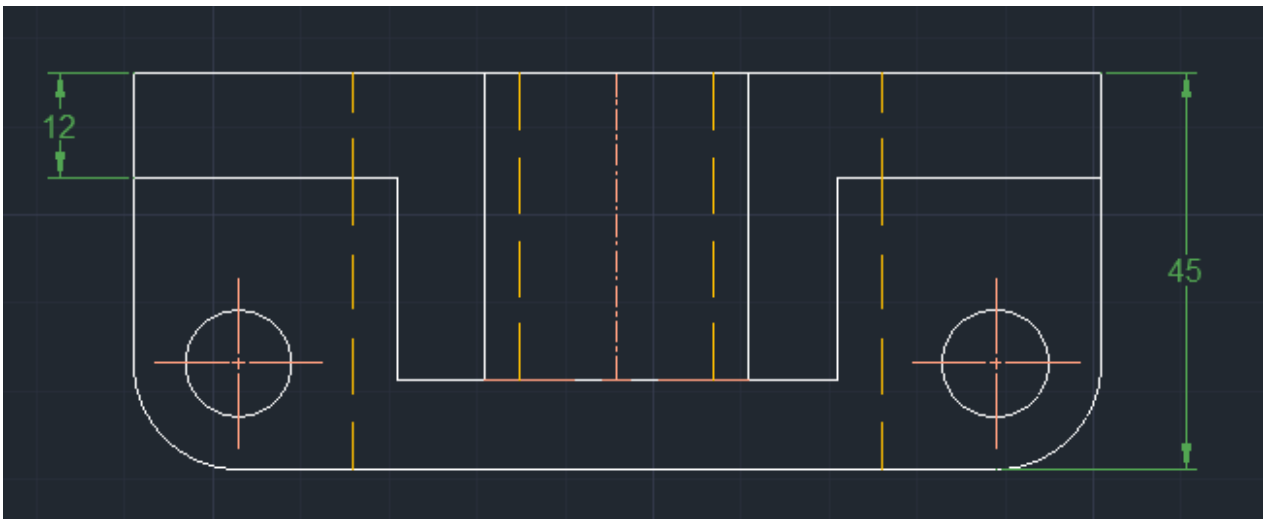


Figure 2: Top view - Drawing #1

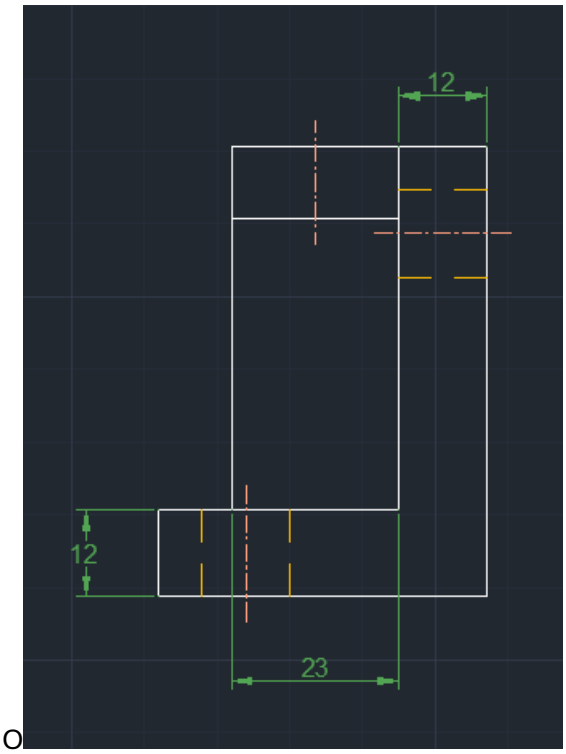


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Figure 3: Side view - Drawing #1

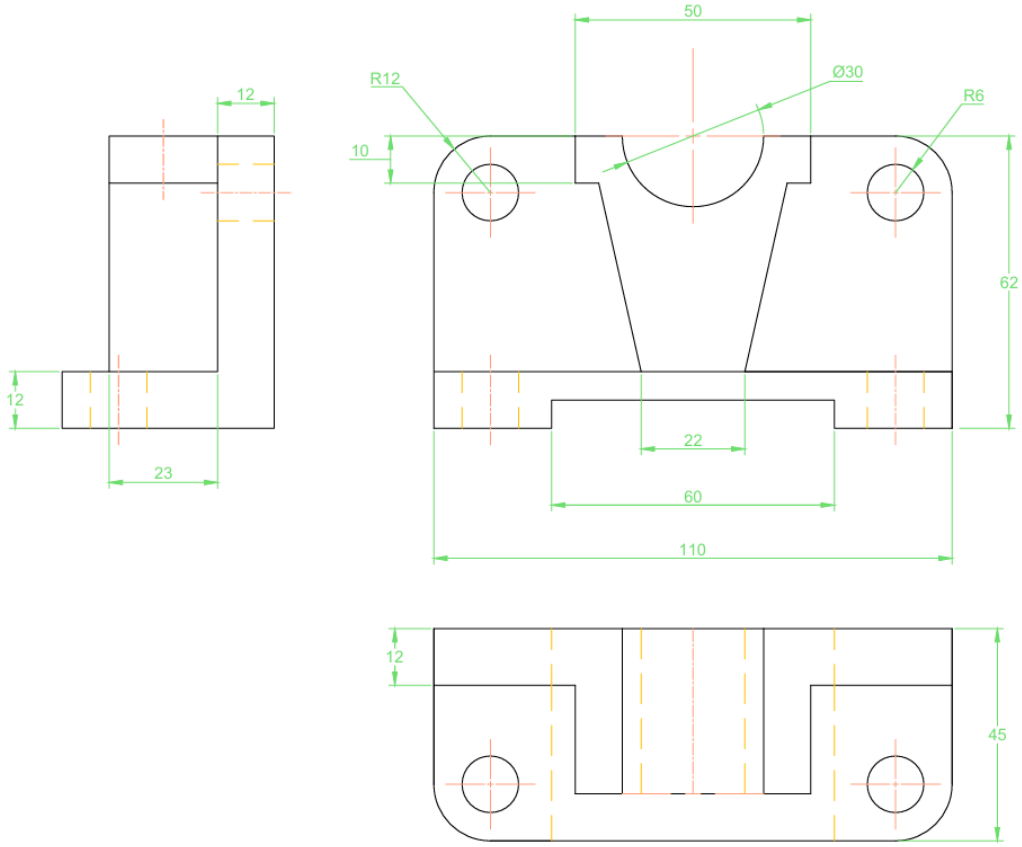
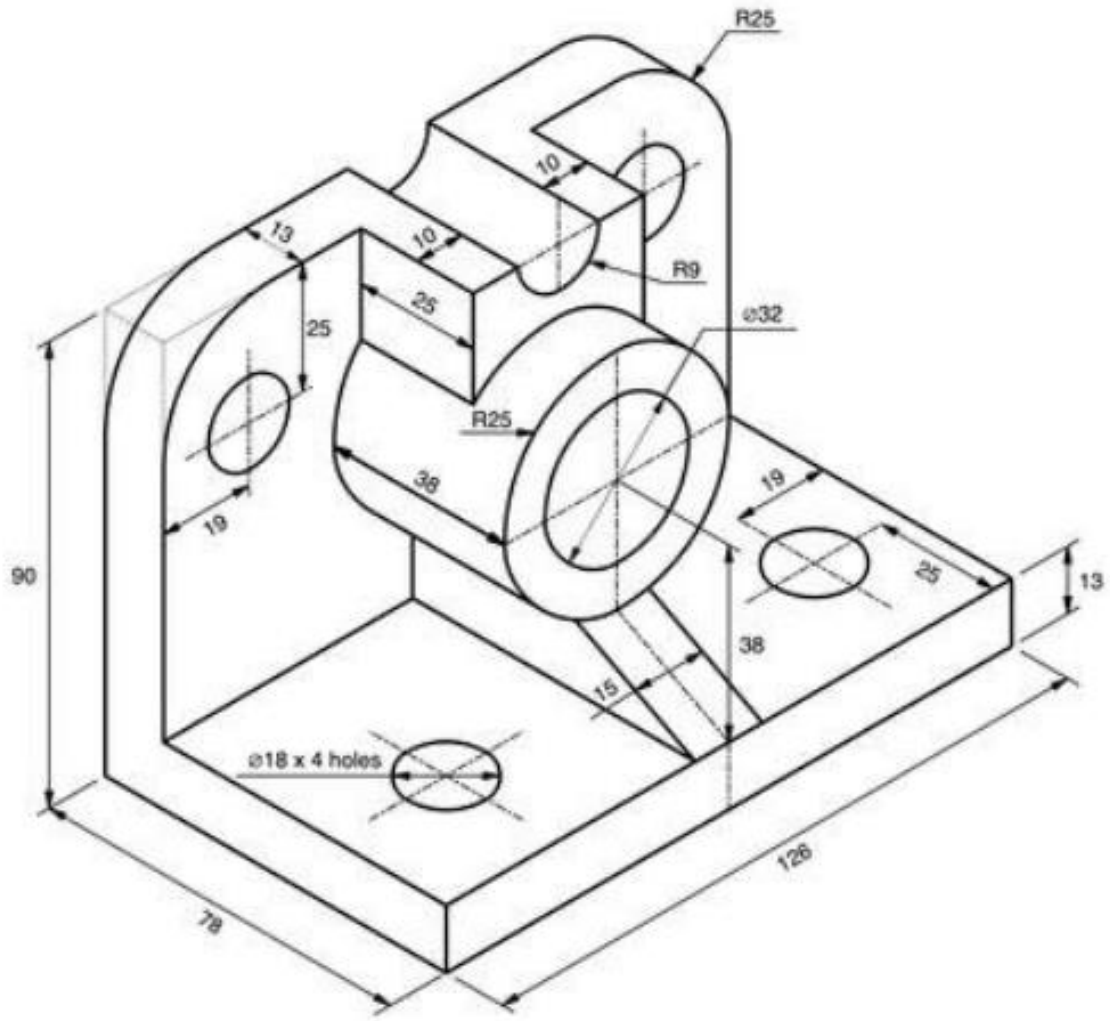


Figure 4: All views - Drawing #1


R25
10
13
10
R9
25
25
⌀32
R25
38
19
19
25
13
90
38
15
⌀18 x 4 holes
126
78

Drawing #2

Orthographic views - Drawing #2

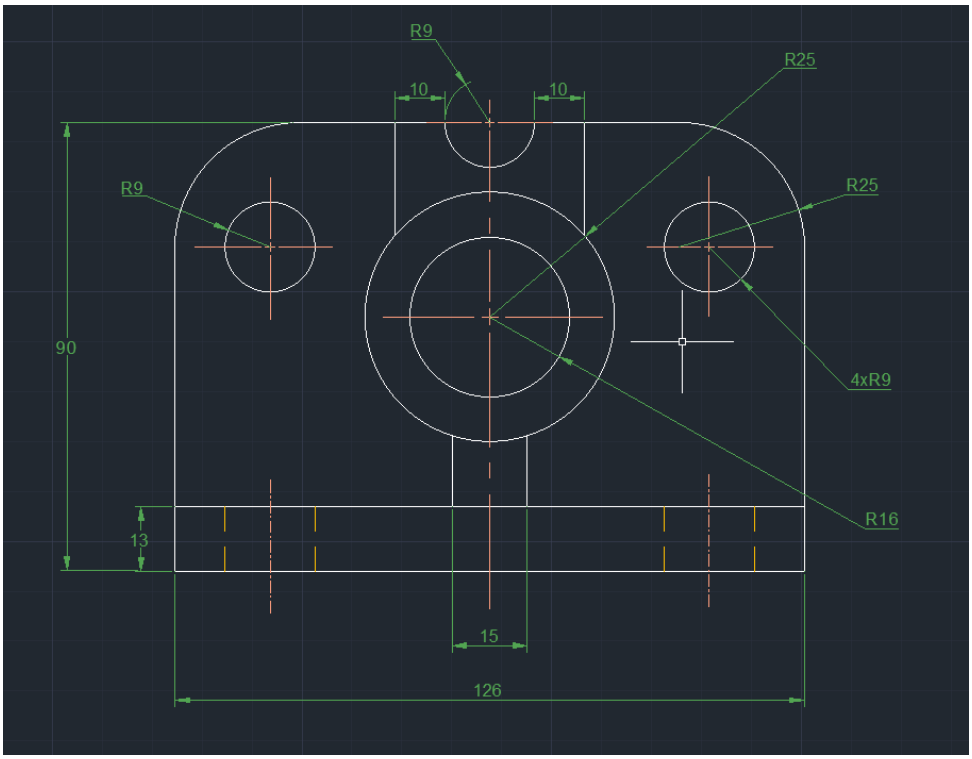


Figure 5: Front view - Drawing #2

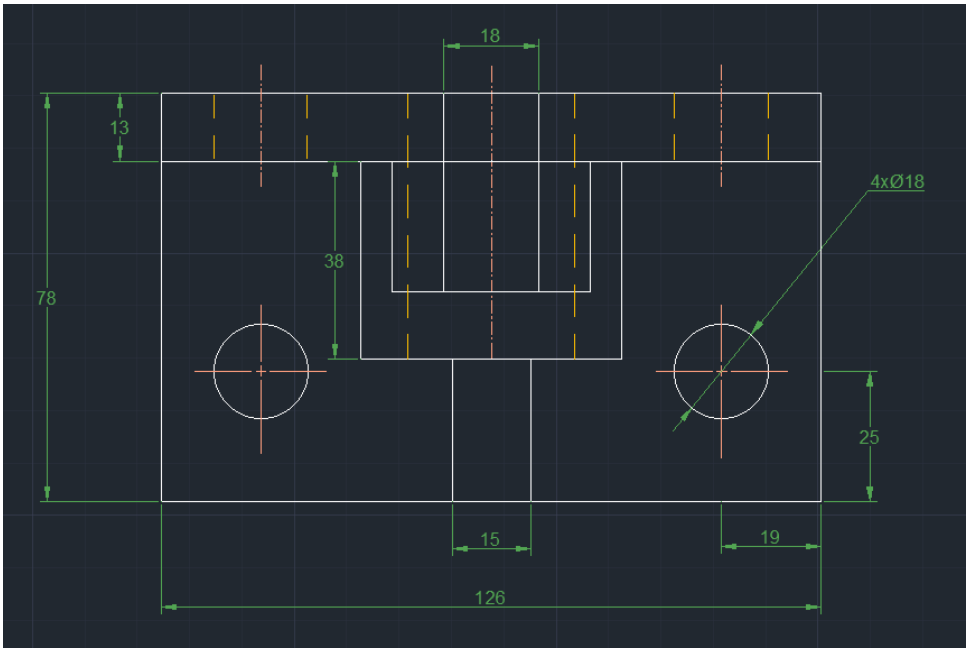


Figure 6: Top view - Drawing #2

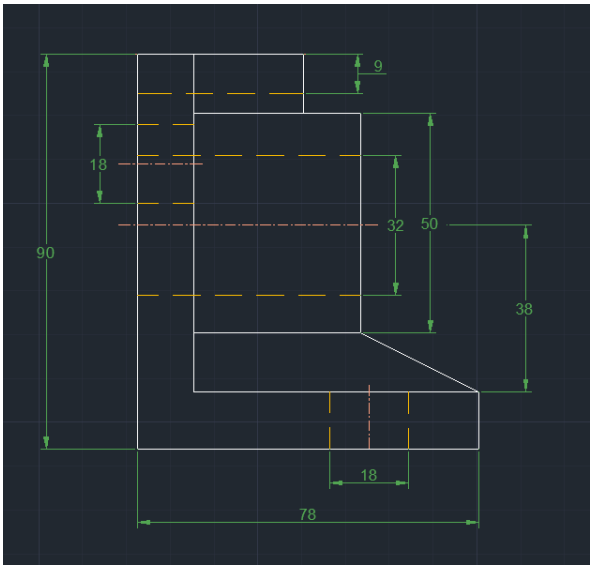


Figure 7: Side view - Drawing #2

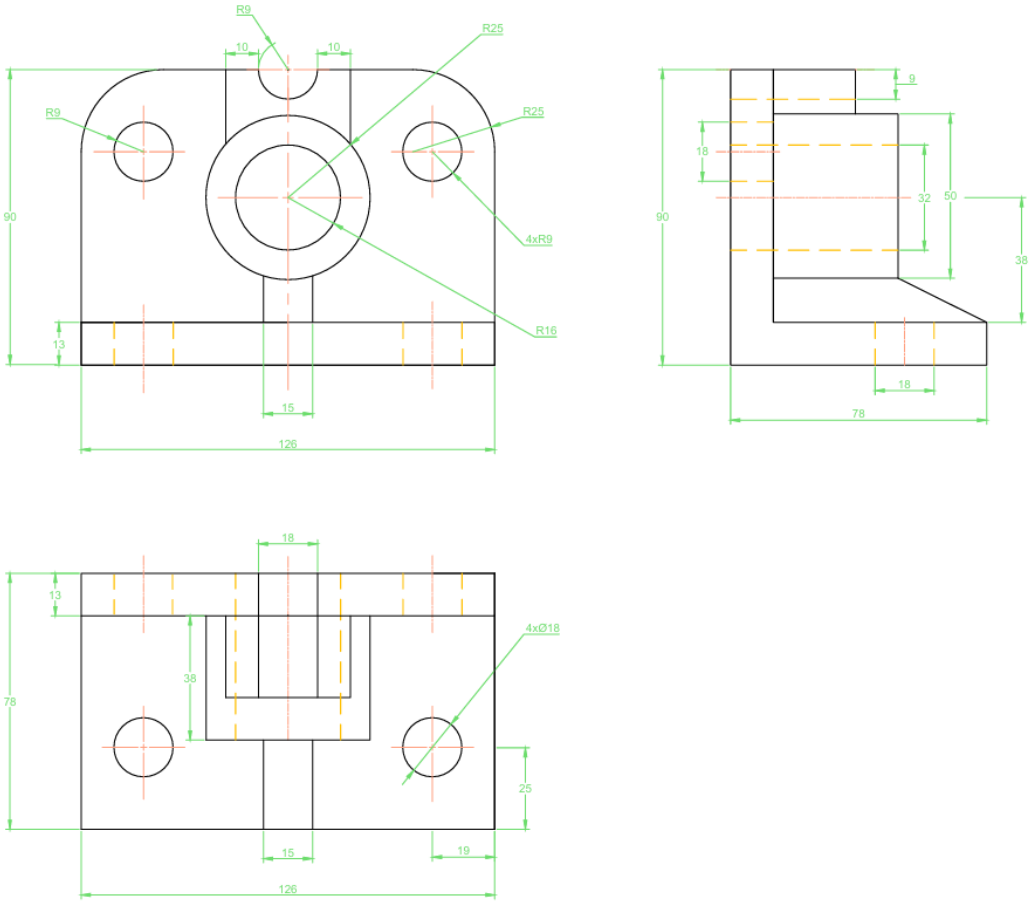
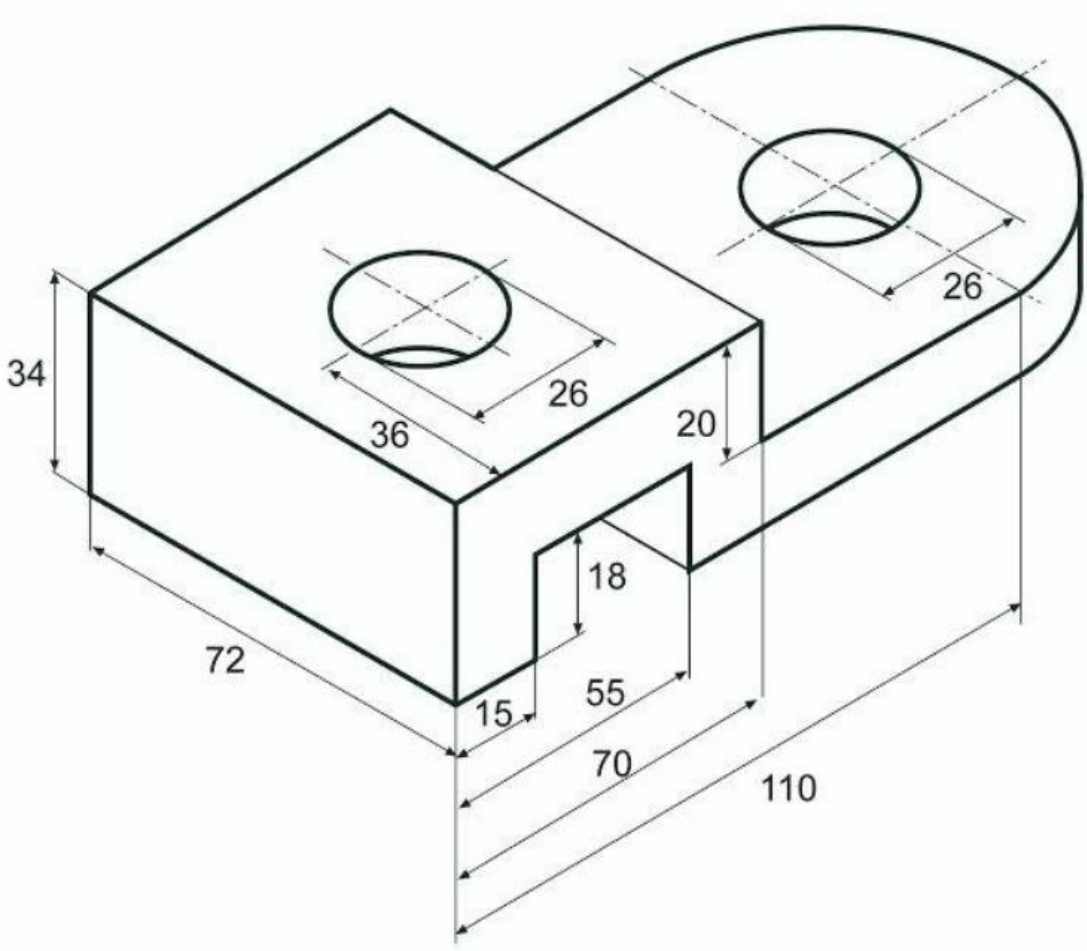


Figure 8: All views - Drawing #2



Drawing #3

Orthographic views - Drawing #3

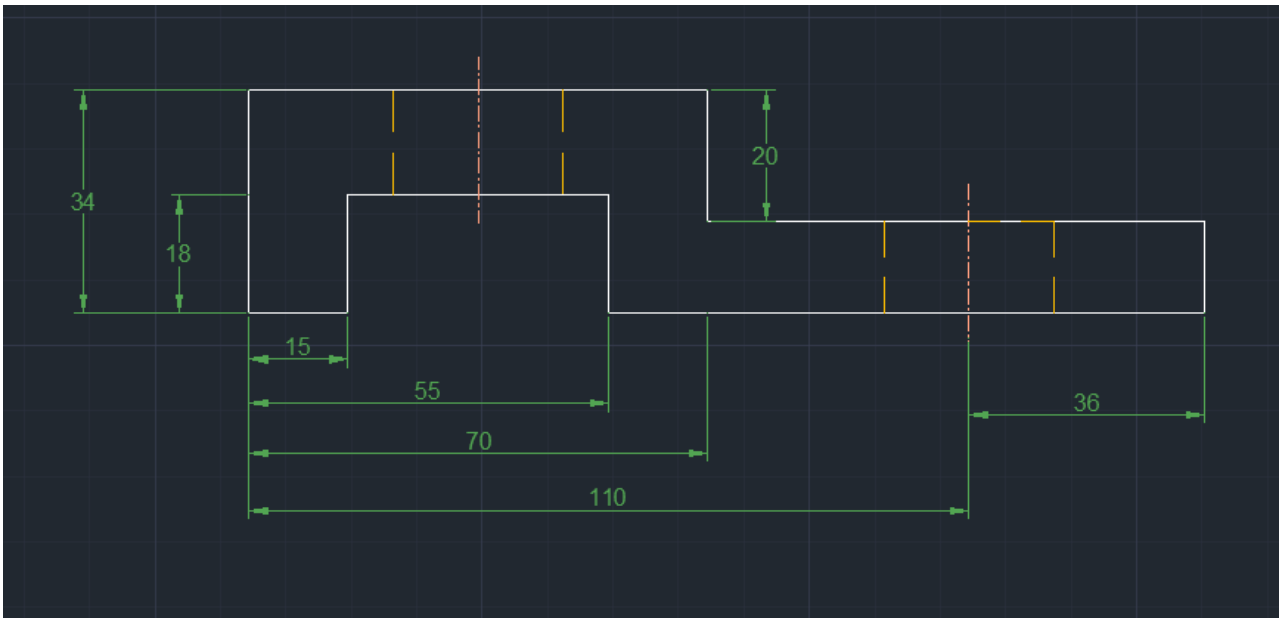


Figure 9: Front view - Drawing #3

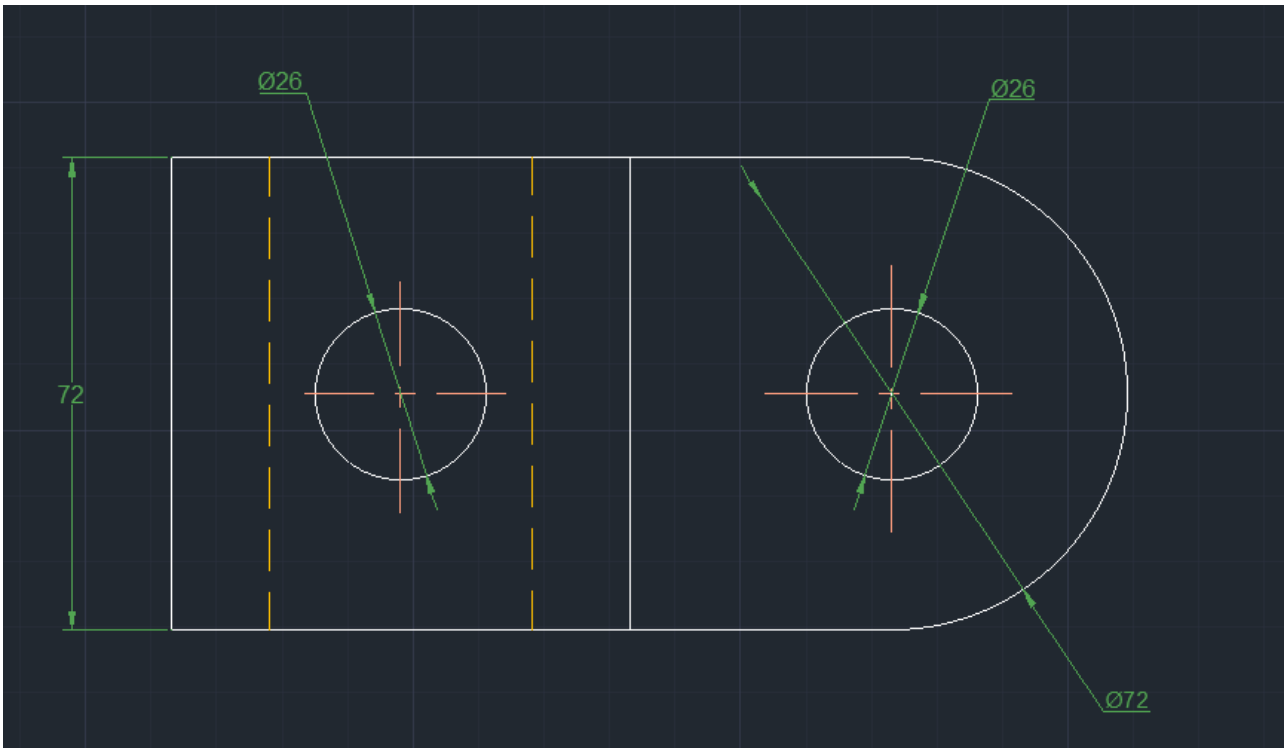


Figure 10: Top view - Drawing #3

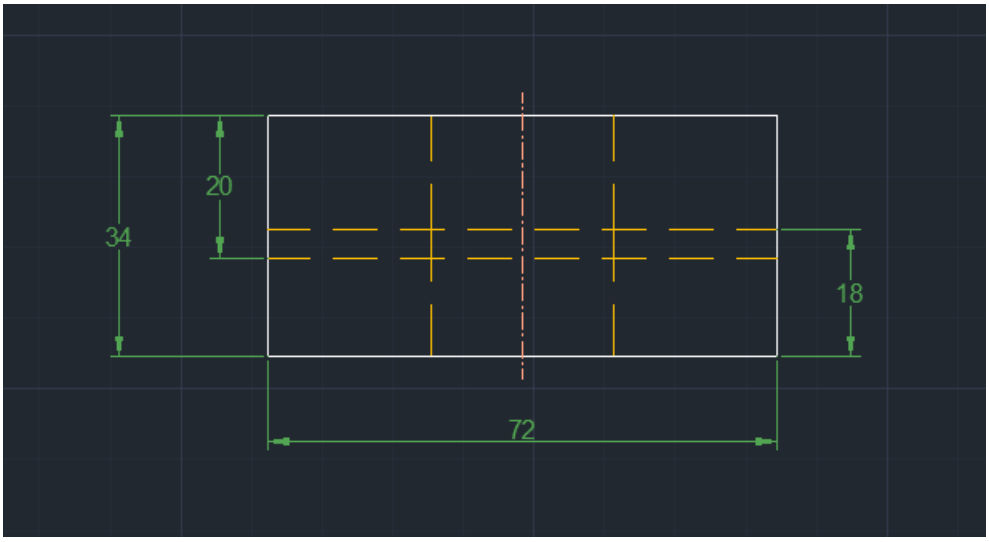


Figure 11: Side view - Drawing #3

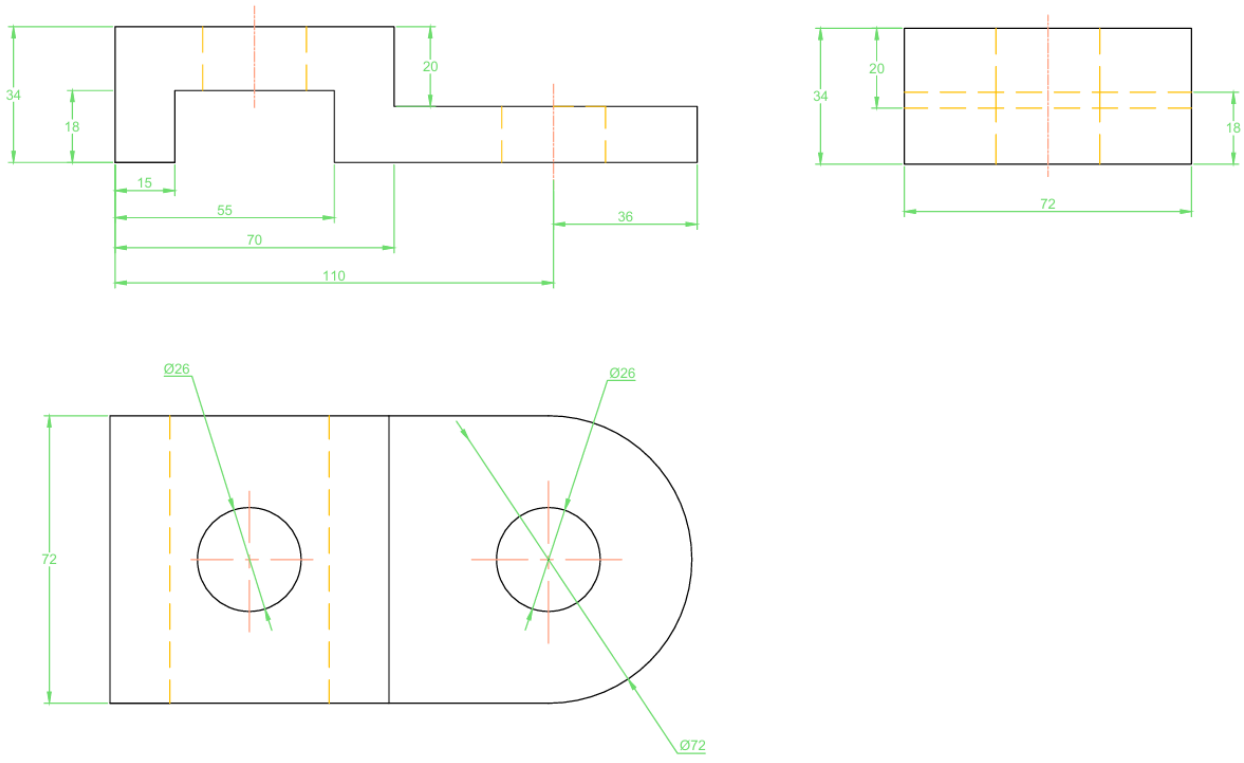


Figure 12: All views - Drawing #3