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Technical Drawing - View & Line Types

A Guide to the Production & Interpretation of Drawings to
BS8888



Slides Created By:
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Why are communication standards necessary in Engineering?



As the customer ordered it



As the sales dept. described it



As the engineers designed it



As the manufacturing dept.
interpreted the drawings



As the installation team
fitted it.



As the customer thought that they
had described it to the sales team

Introduction

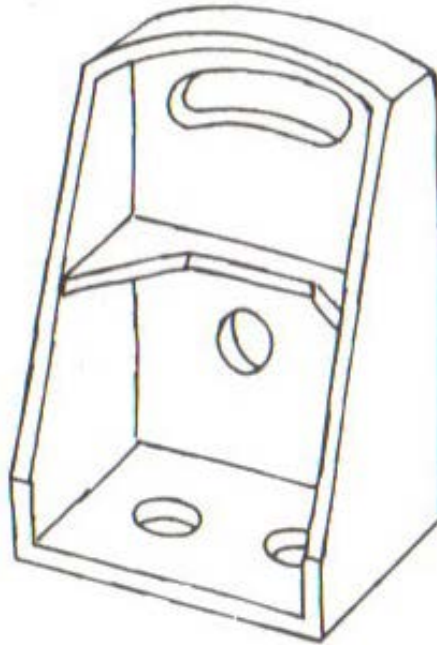
Engineering or Technical Drawings

- A standardised communication tool
- Layout of multi-views
- Dimensioning
- Tolerancing
- Surface finish/treatments
- Assemblies

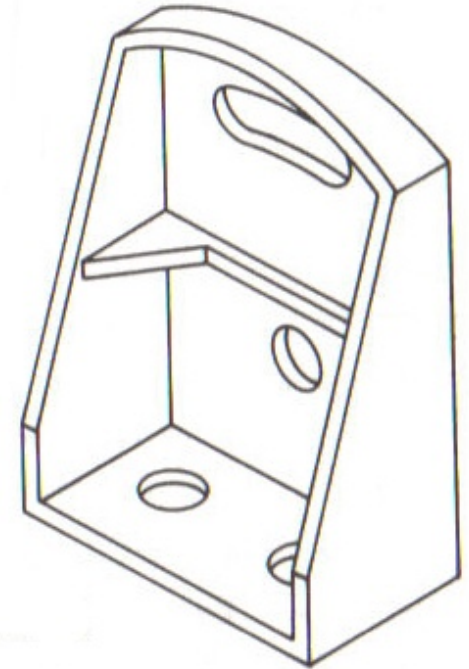
Types of Visual Communication



Photograph

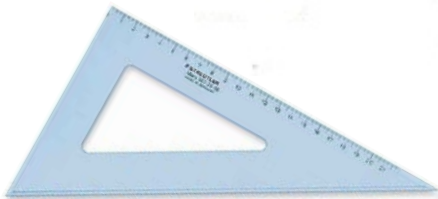
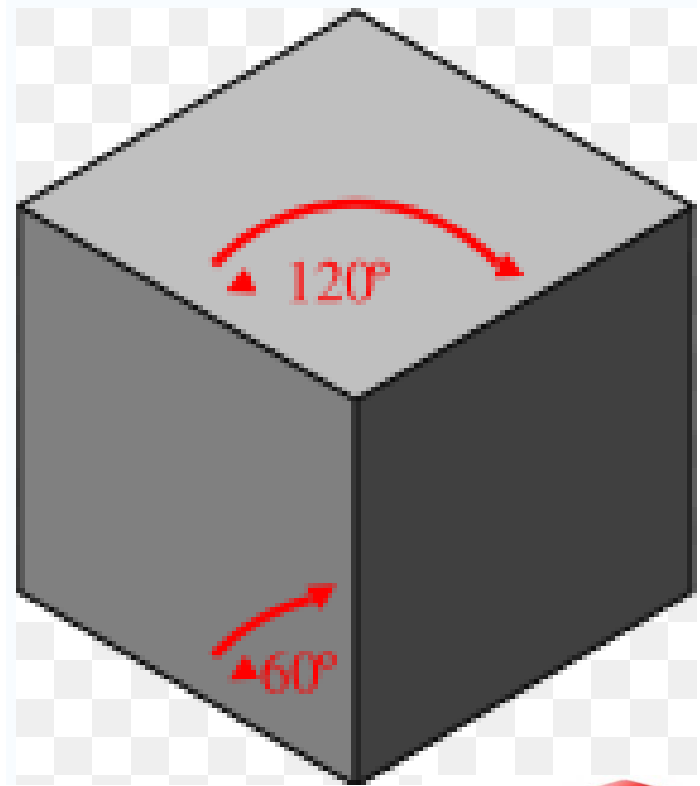
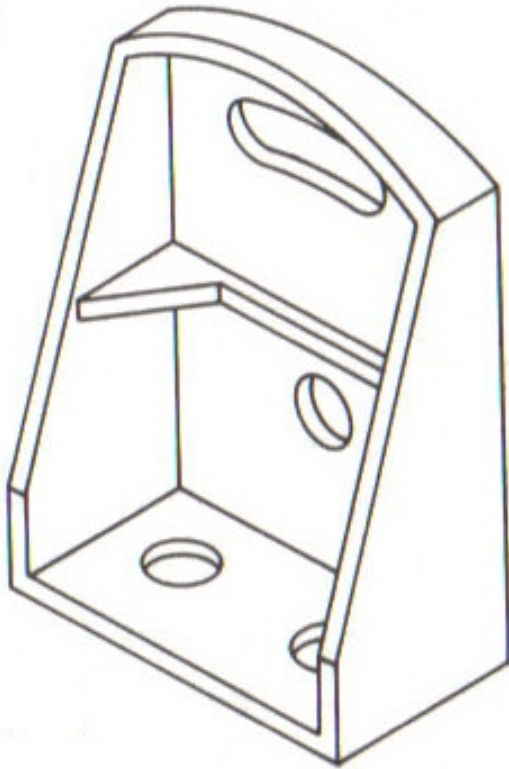


Free Hand Sketch



Isometric Drawing

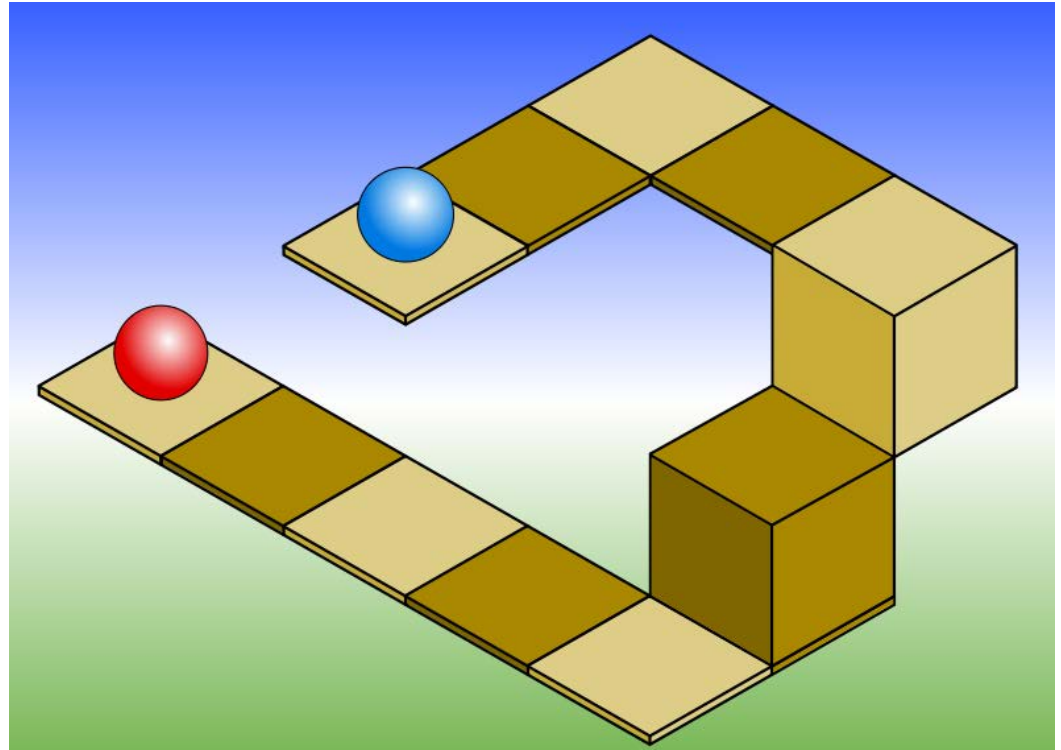
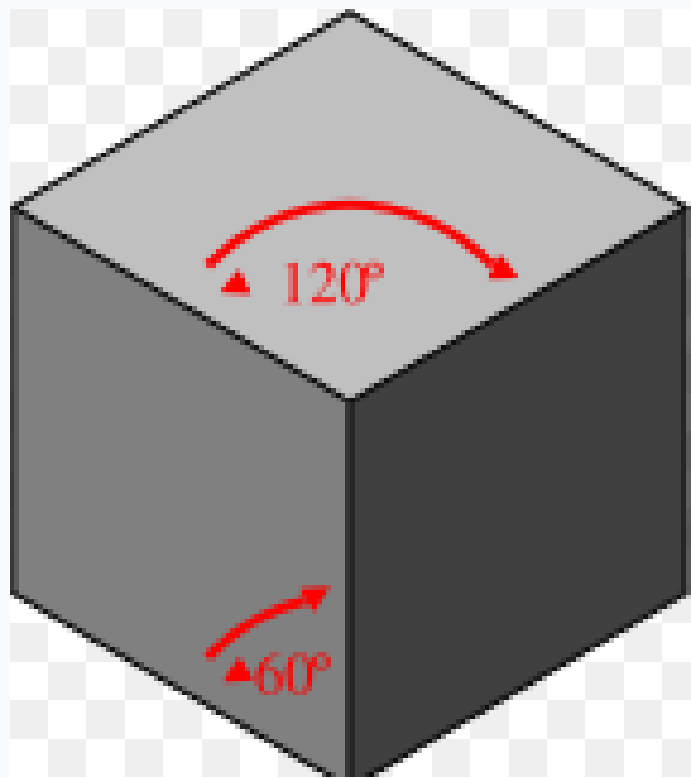
Isometric Drawing



Easy to construct
using basic equipment or..... CAED software

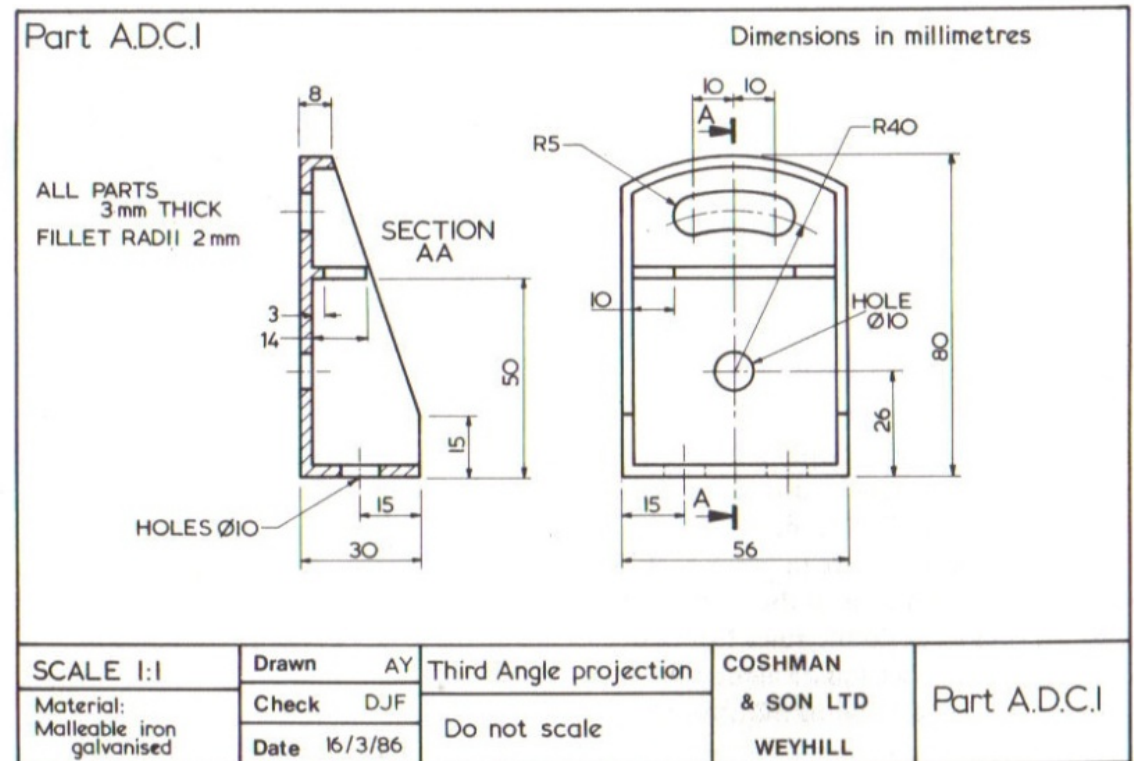


Isometric Drawing



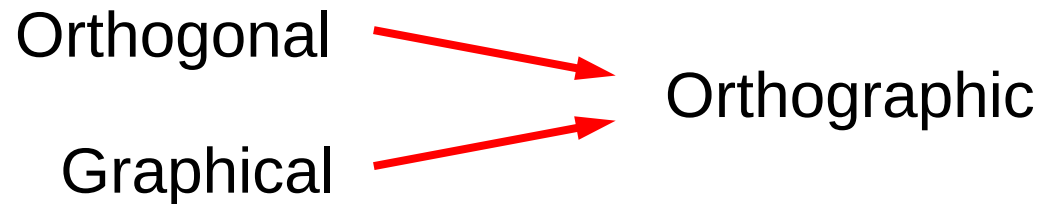
Limited communication tool

Orthographic Projection



Orthographic Drawing Terminology

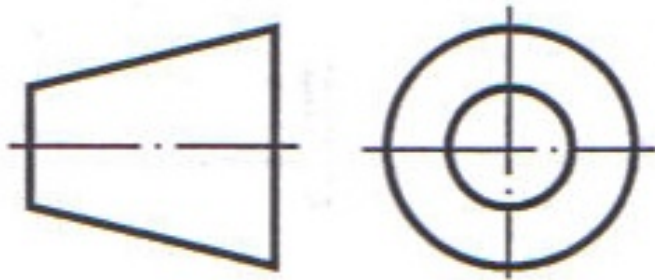
2 Planes at 90° (right angles) to each other are said to be '**orthogonal**'



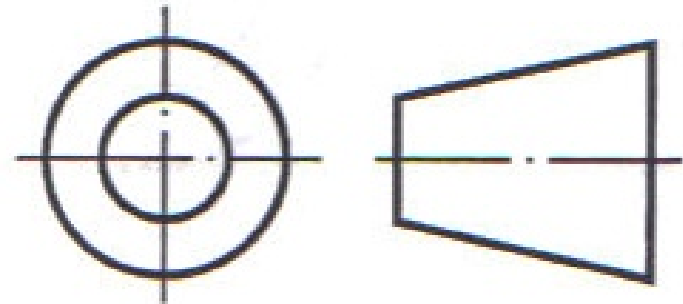
Orthographic Drawing Conventions

Two angles are used for orthographic projection

First Angle Projection

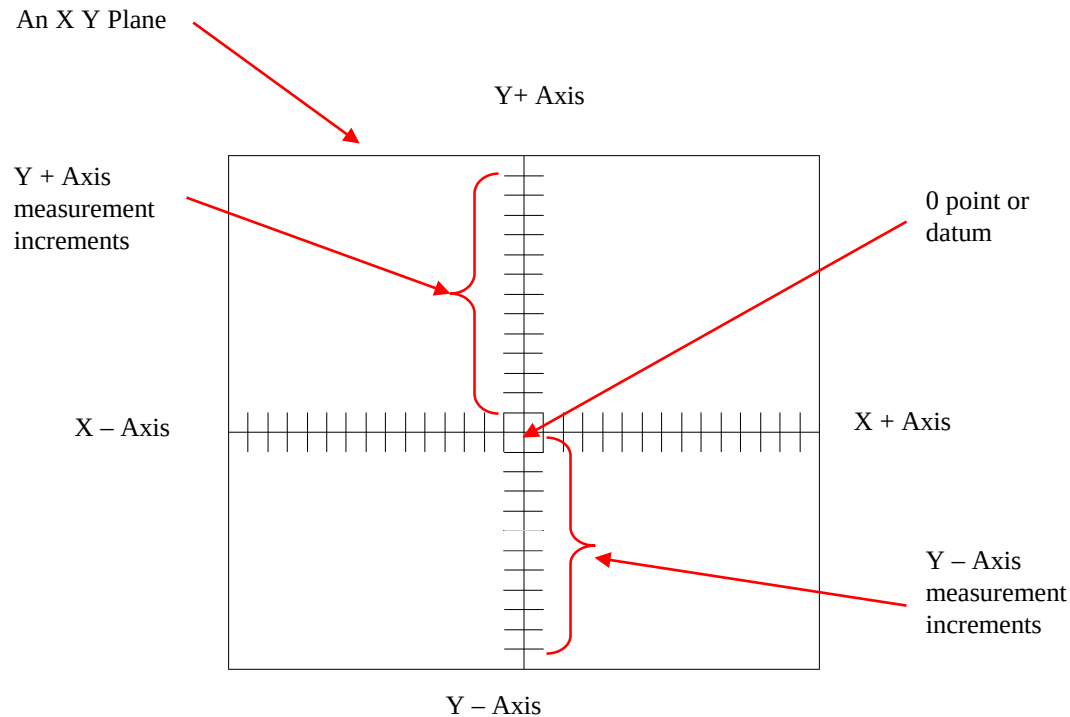


Third Angle Projection



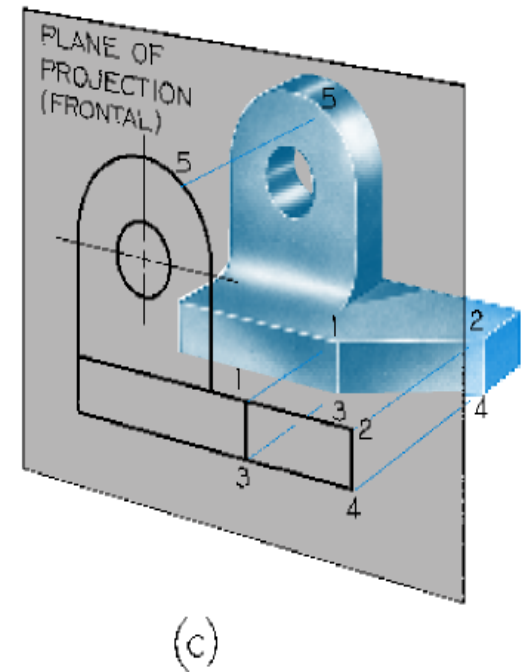
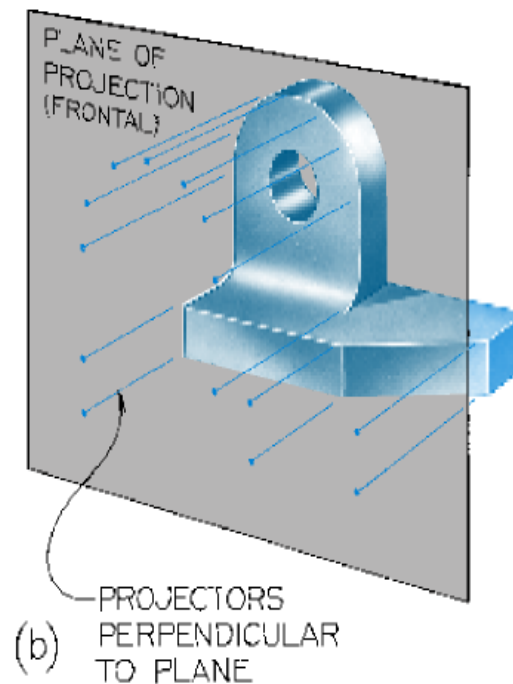
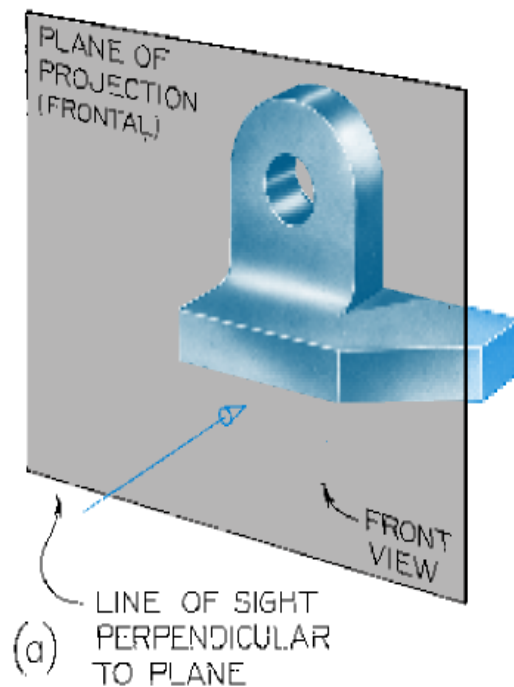
Orthographic Drawing

A Plane $\longrightarrow$ A flat surface or the intersection of two axis at 90° to each other



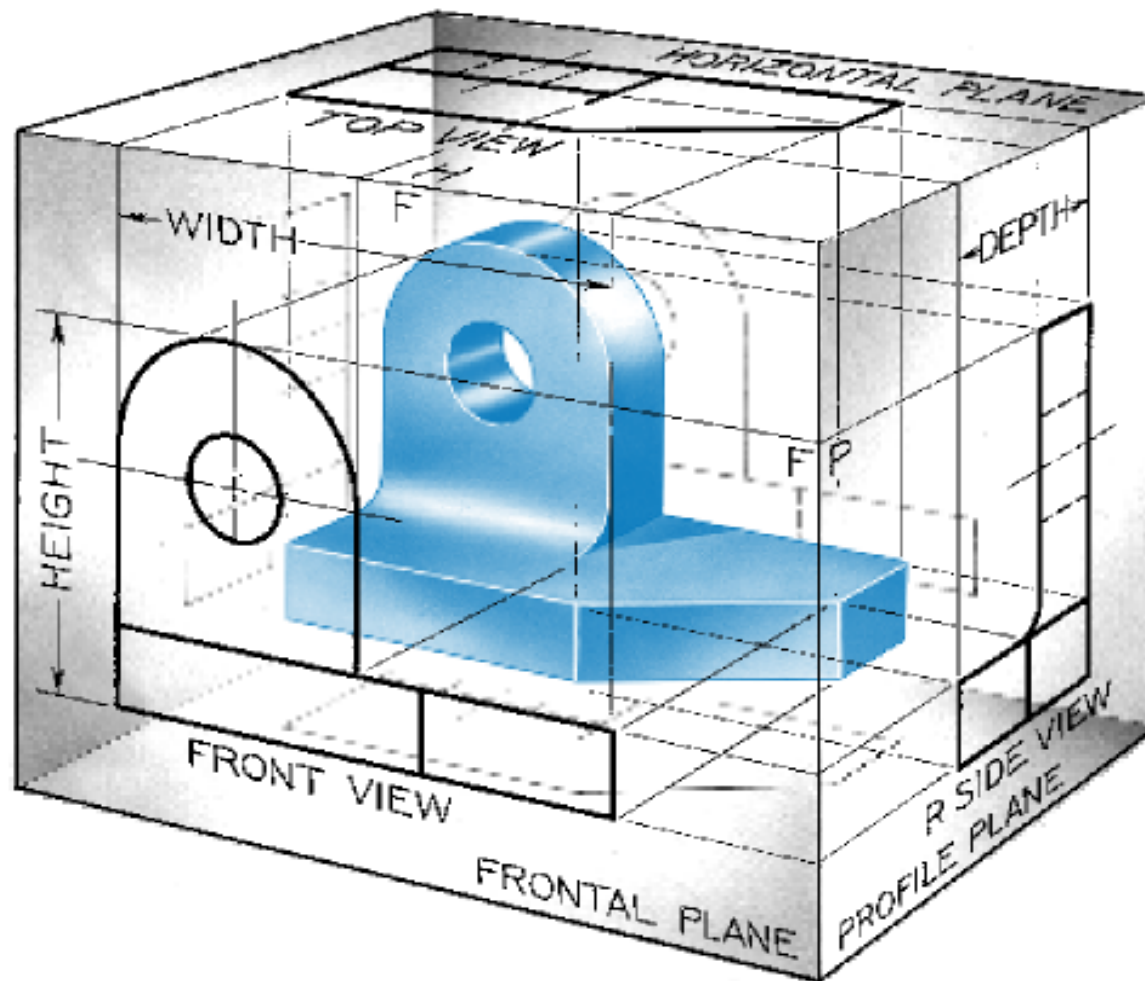
Orthographic Drawing

Projection of an Object onto a Plane



Orthographic Drawing

Projection of an Object onto a Plane

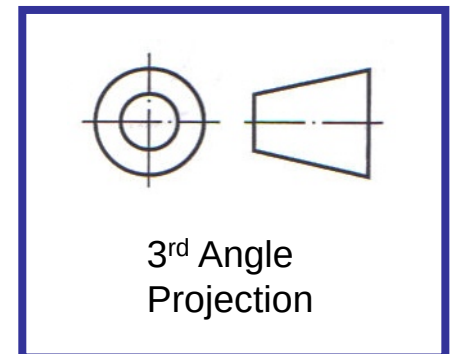
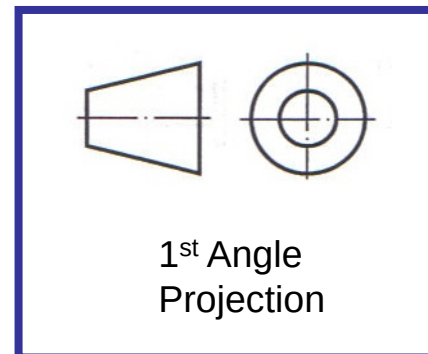
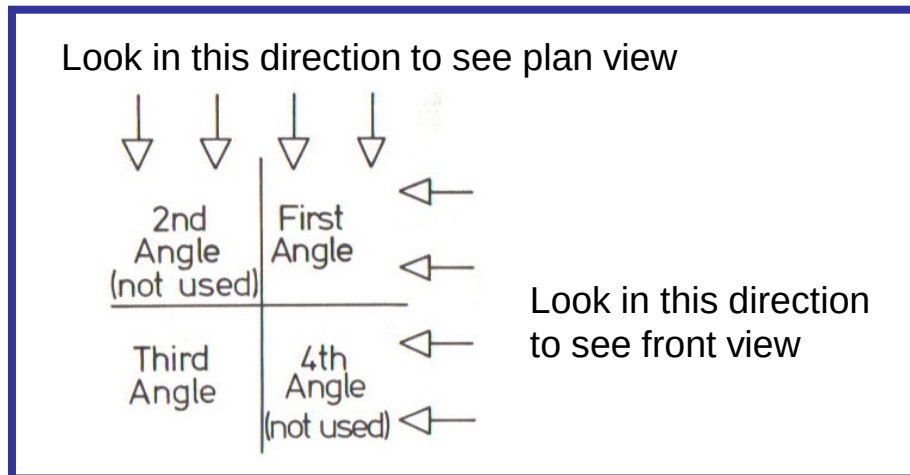
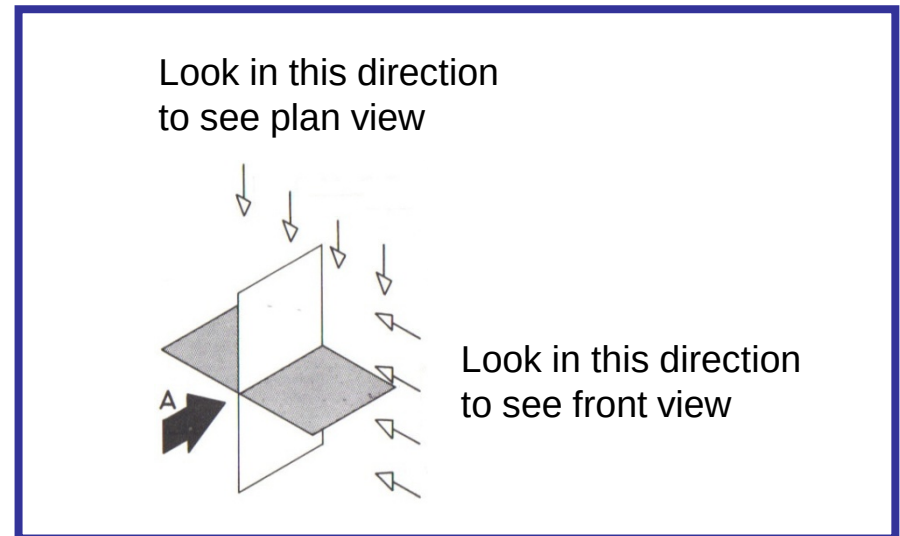
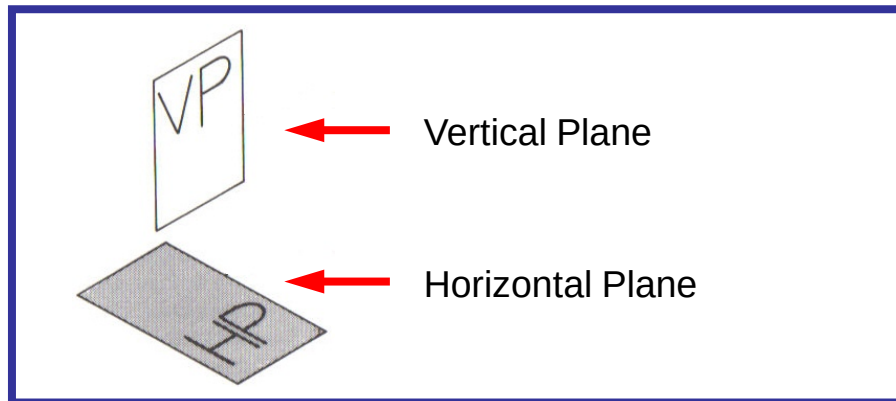


Vertical & Horizontal Planes

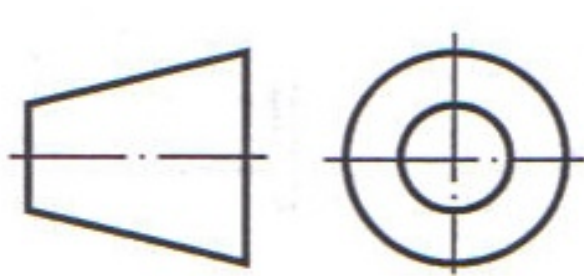
1st or 3rd Angle Projection



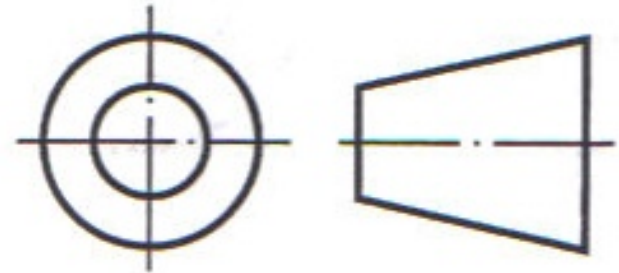
The article to be drawn is placed on one of the angles formed by a vertical plane intersecting a horizontal plane



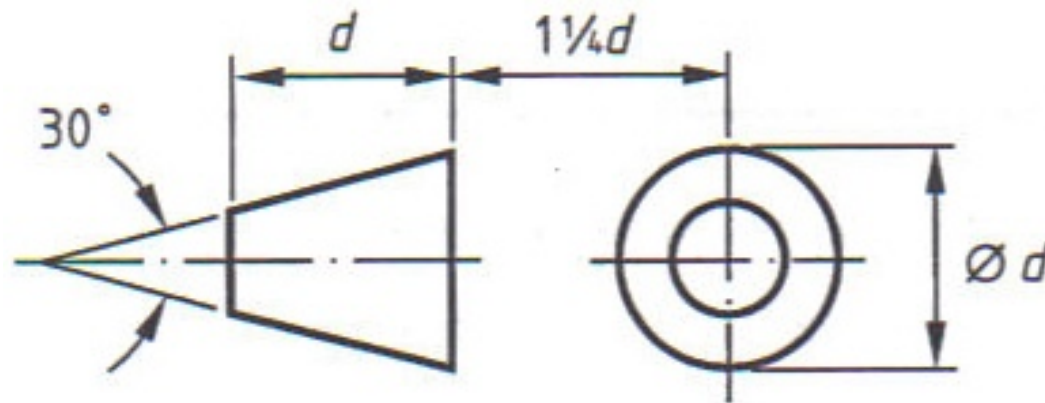
1st / 3rd Angle Projection Symbols



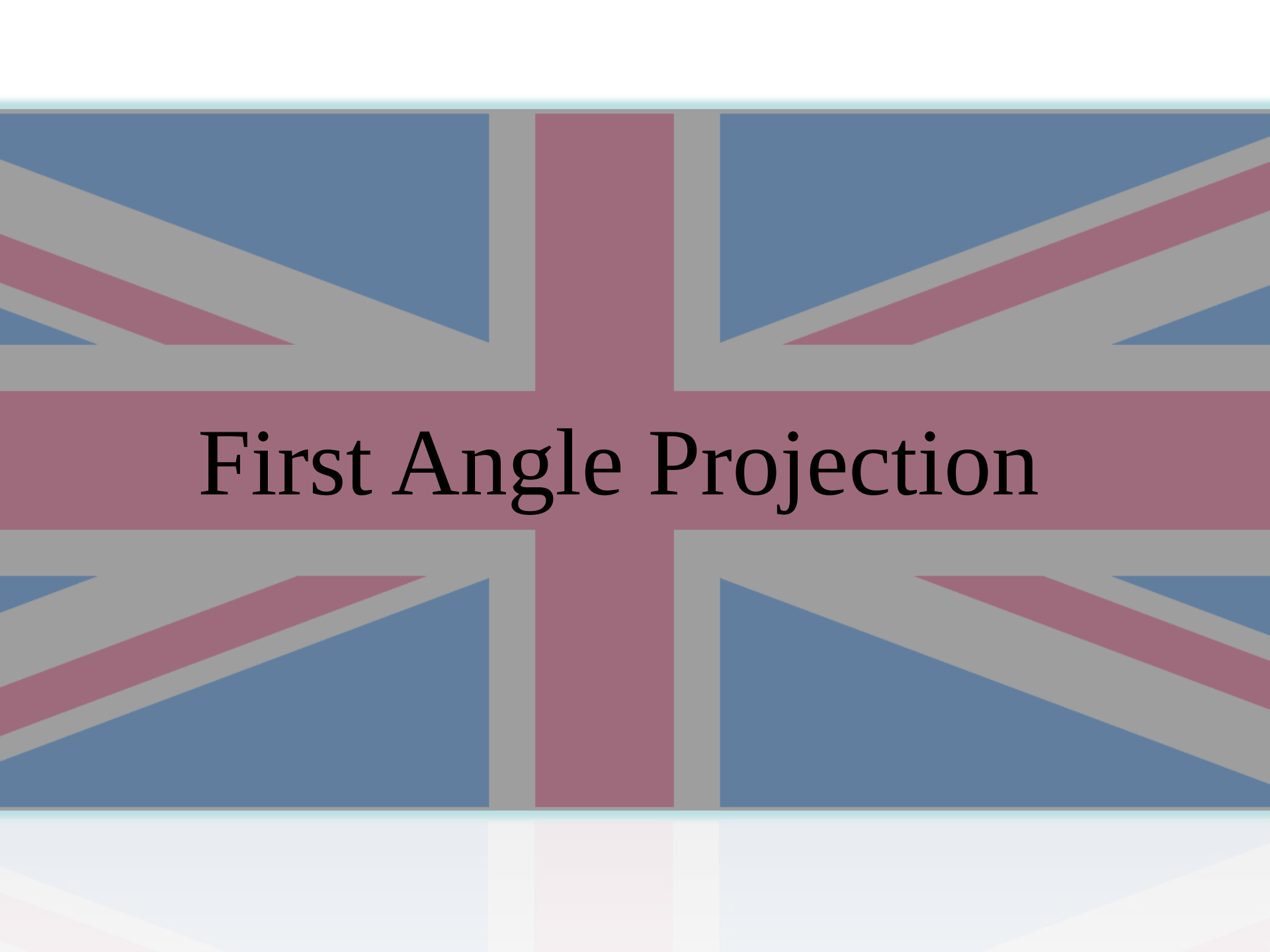
1st Angle Projection



3rd Angle Projection

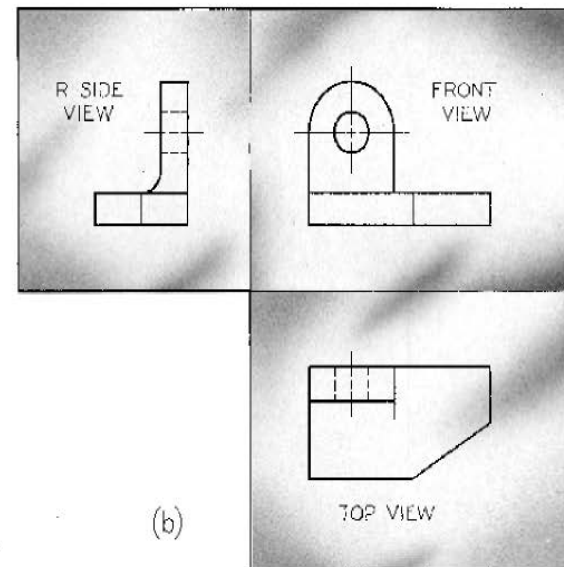
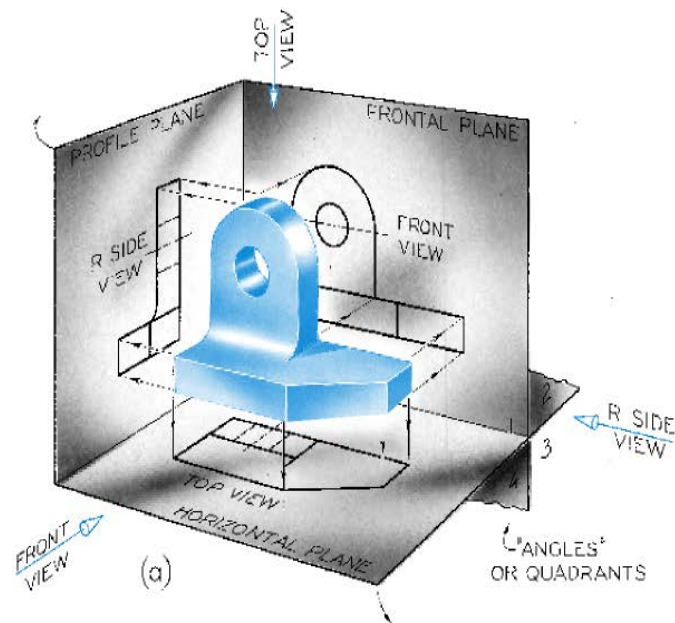
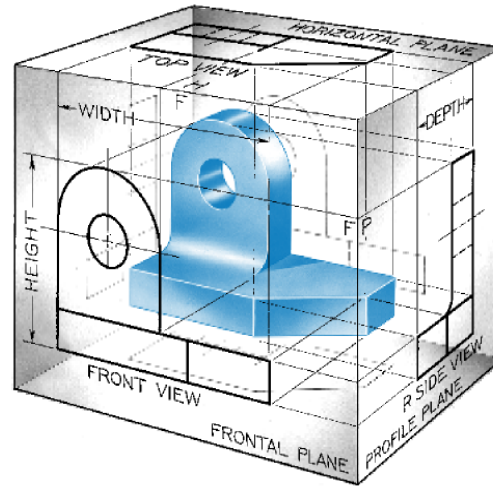


Recommended Proportions

The background of the slide is a stylized Union Jack flag. It features a central red cross with a white border, set against a blue field. The flag is composed of geometric shapes, primarily triangles and rectangles, in shades of blue, red, and white. The text "First Angle Projection" is centered over the white cross.

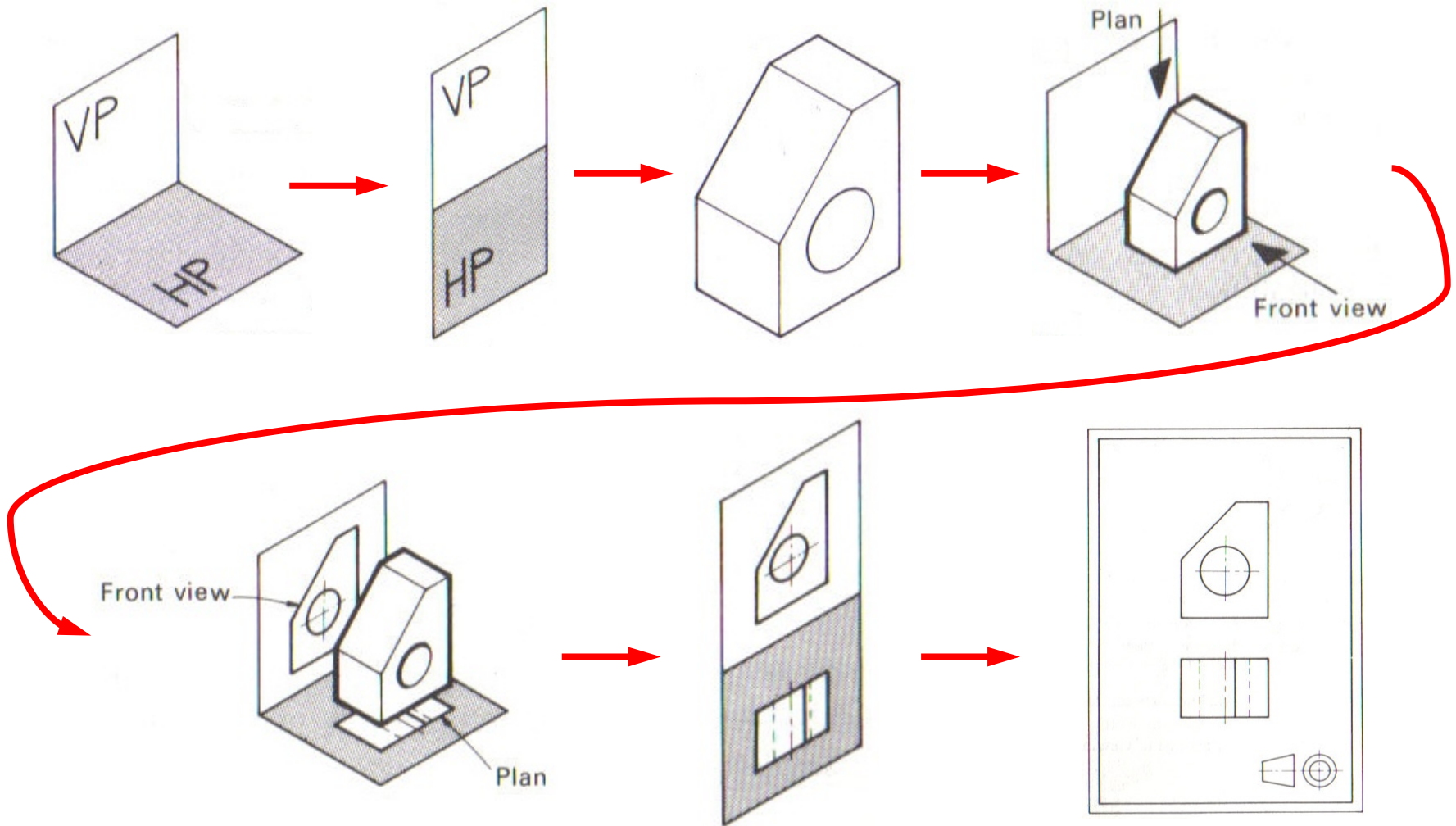
First Angle Projection

First Angle Projection



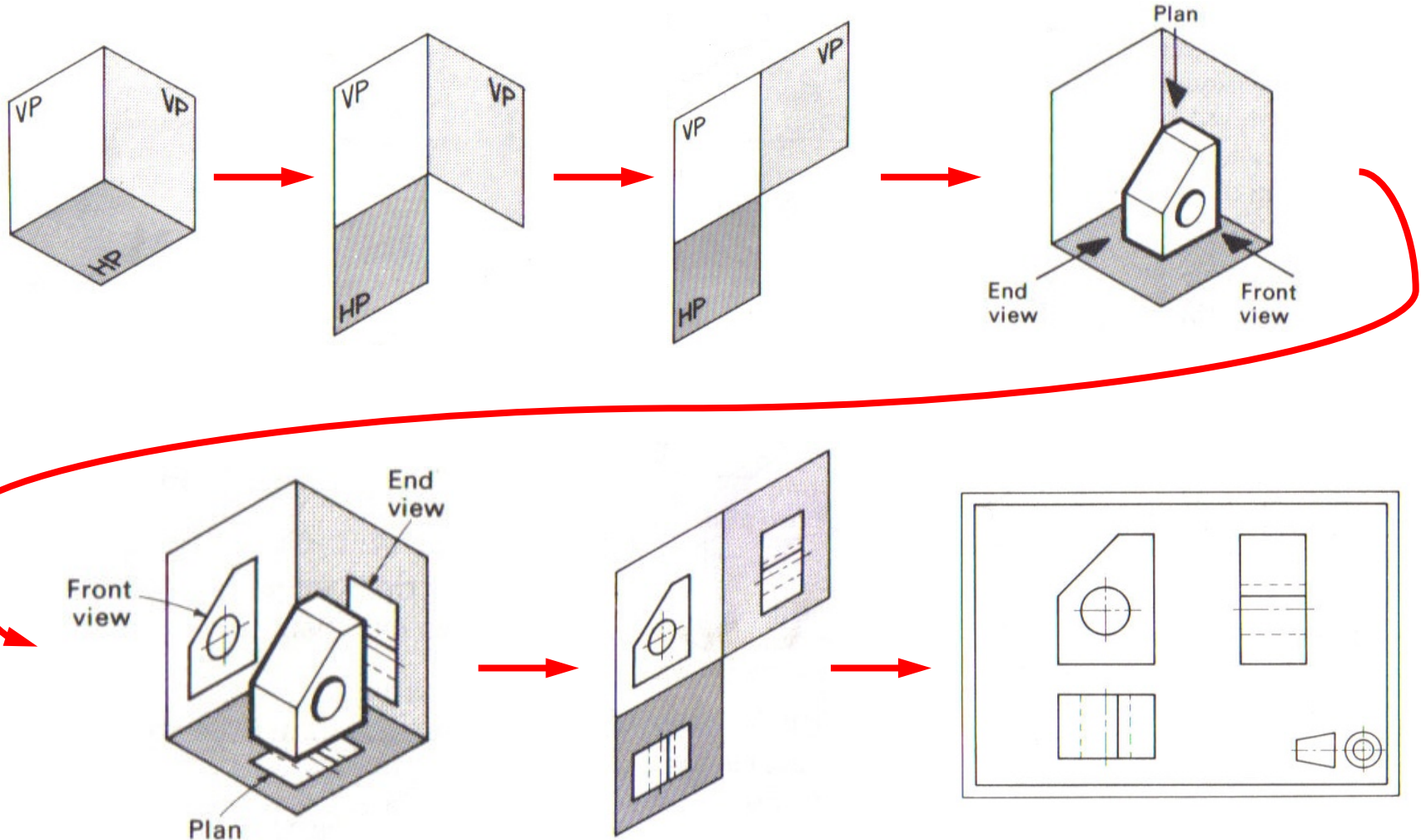
First Angle Projection

Two Projections



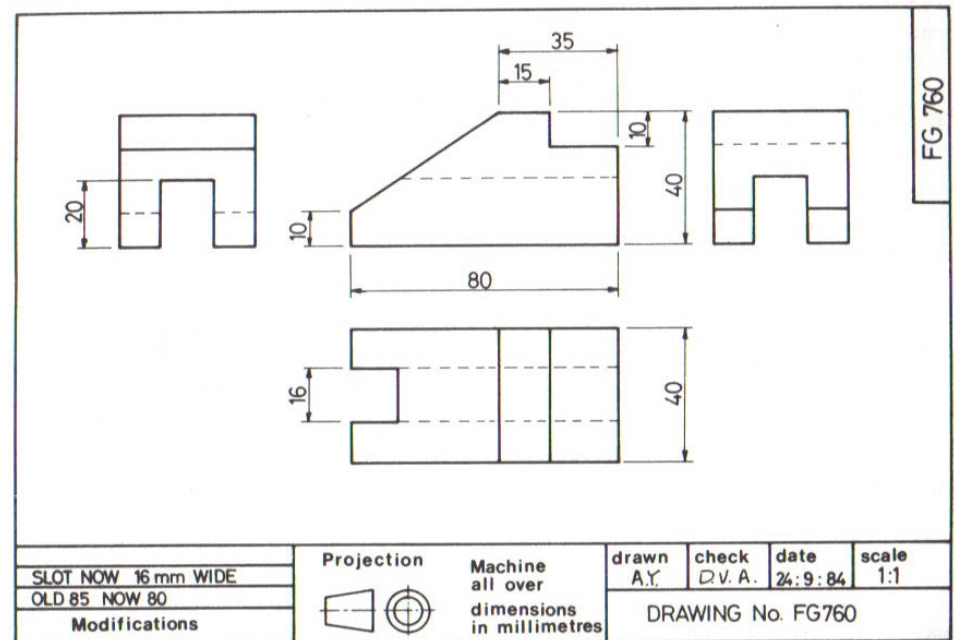
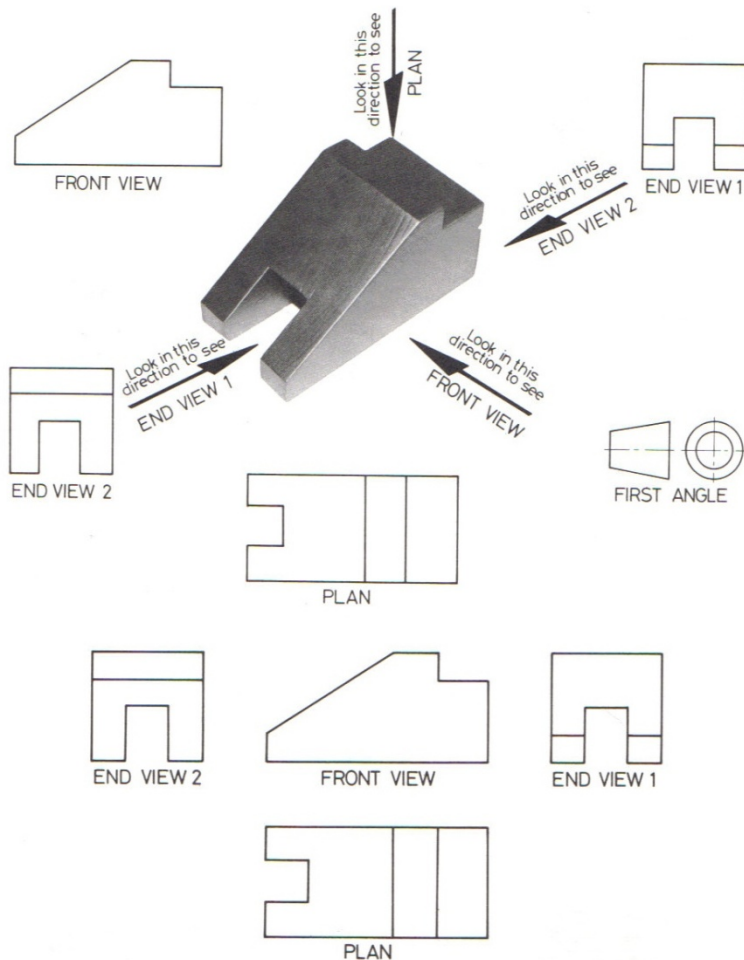
First Angle Projection

Three Projections



First Angle Projection

Four Projections



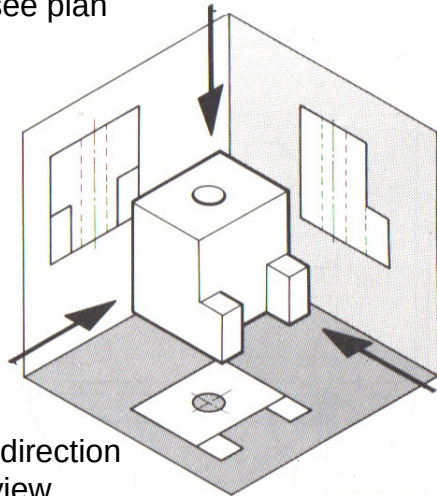
How Many Views?

- Determined by the designer, design engineer, draftsman etc.
- Ask yourself the question :—
Can the component be fully described/detailed in a:-
 - Single View Drawing
 - Two View Drawing
 - Three View Drawing
 - Four View Drawing
- In General, the number of views in a given drawing is determined by selecting the **minimum** number of views needed to clearly show the various features of a component.

First Angle View Position

Part Orientation

Look in this direction
to see plan



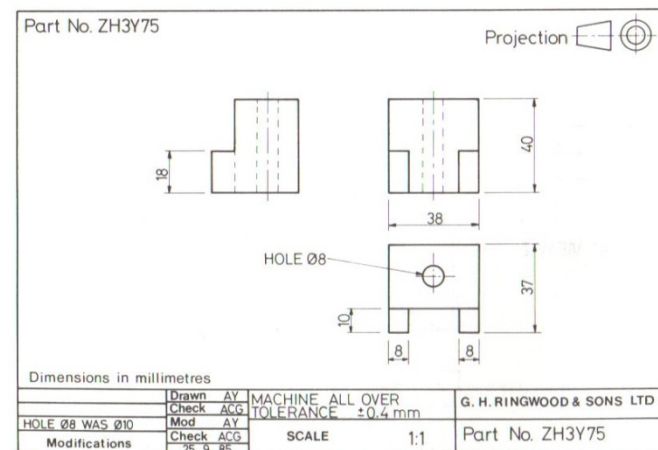
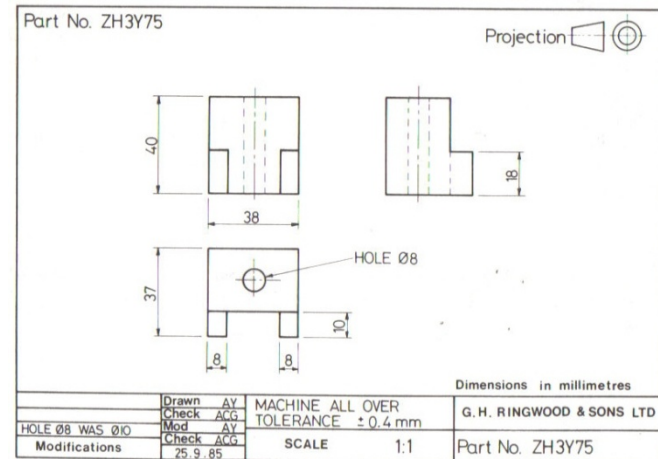
Look in this direction
to see front view

Look in this direction
to see end view

Look in this direction
to see plan

Look in this direction
to see front view

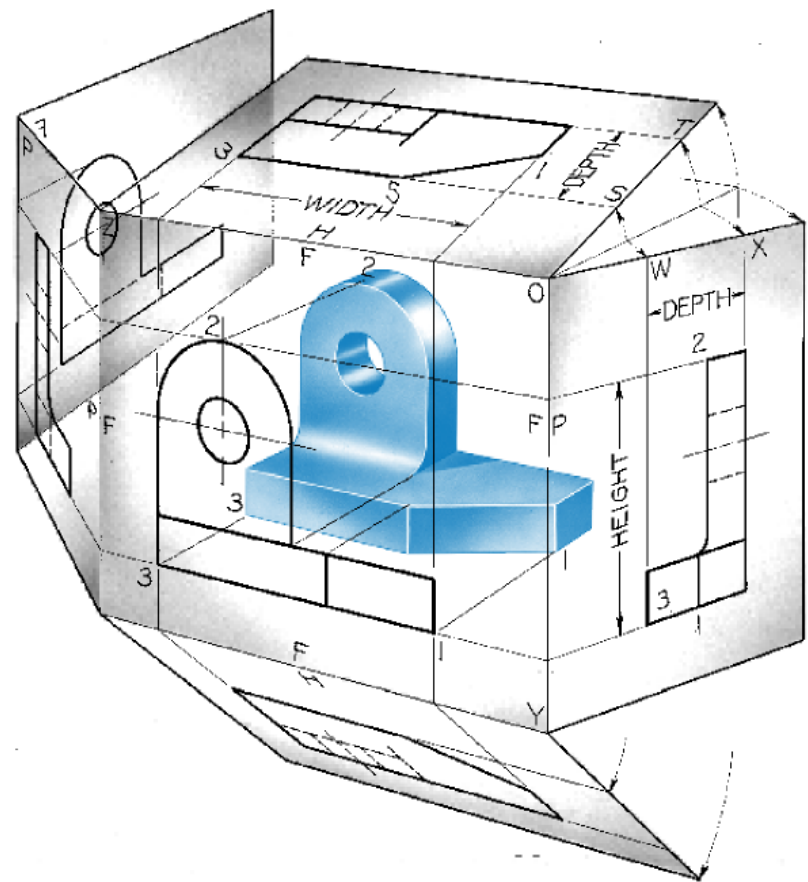
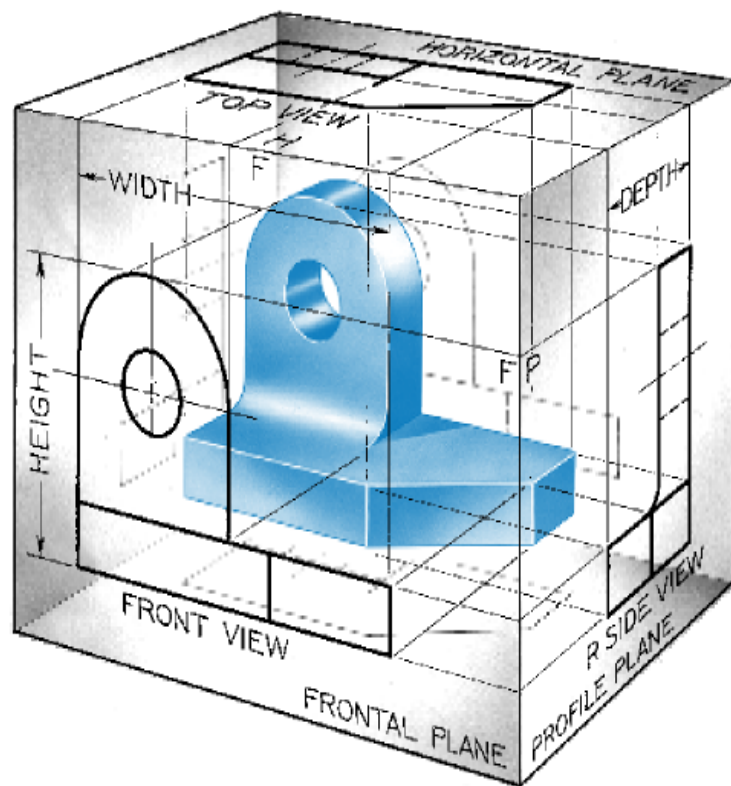
Look in this direction
to see end view



The background of the slide is a close-up, slightly angled view of the American flag. The blue canton with white stars is visible in the upper left, while the red and white stripes dominate the rest of the frame. The flag appears to be waving, with soft folds and highlights.

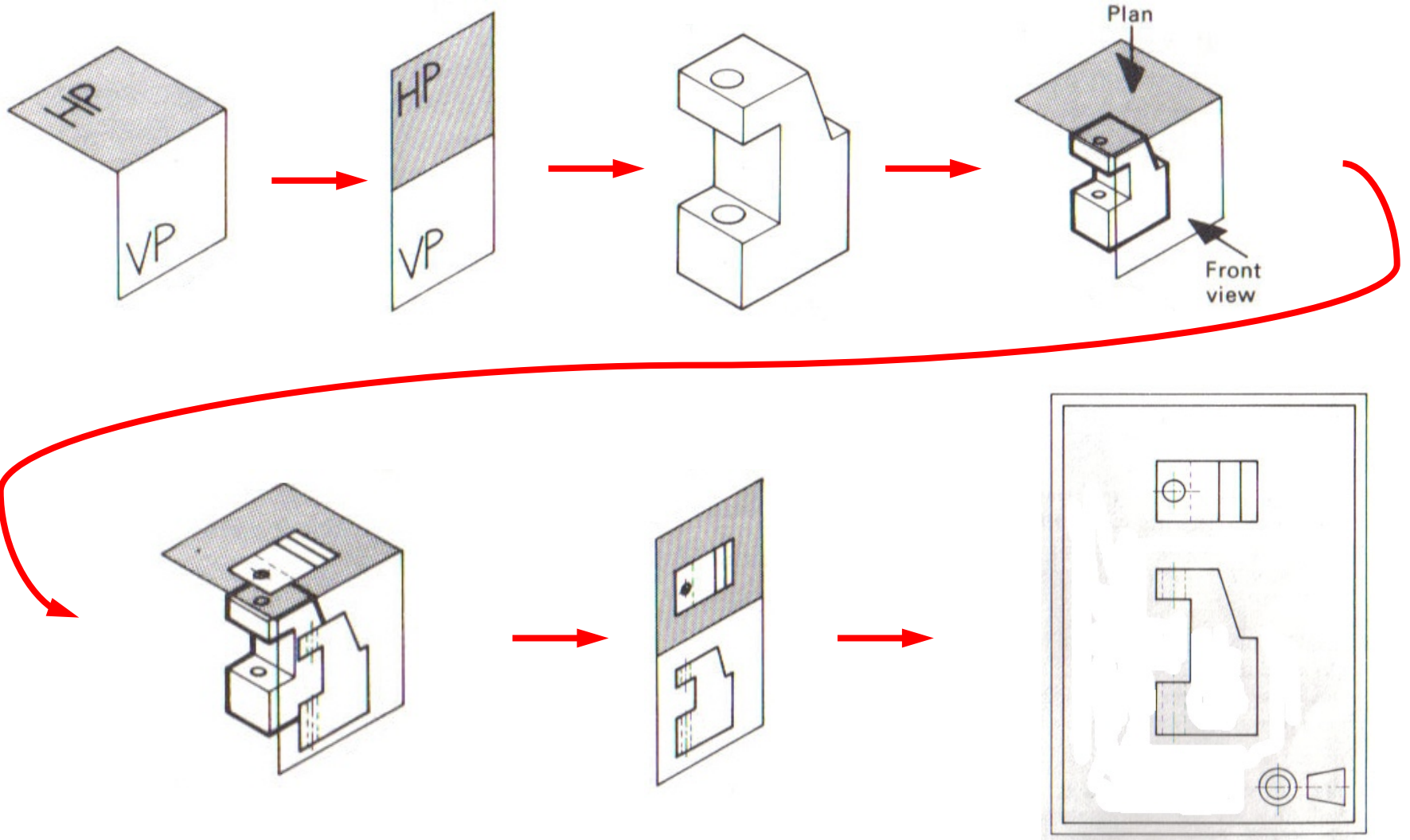
Third Angle Projection

Third Angle Projection



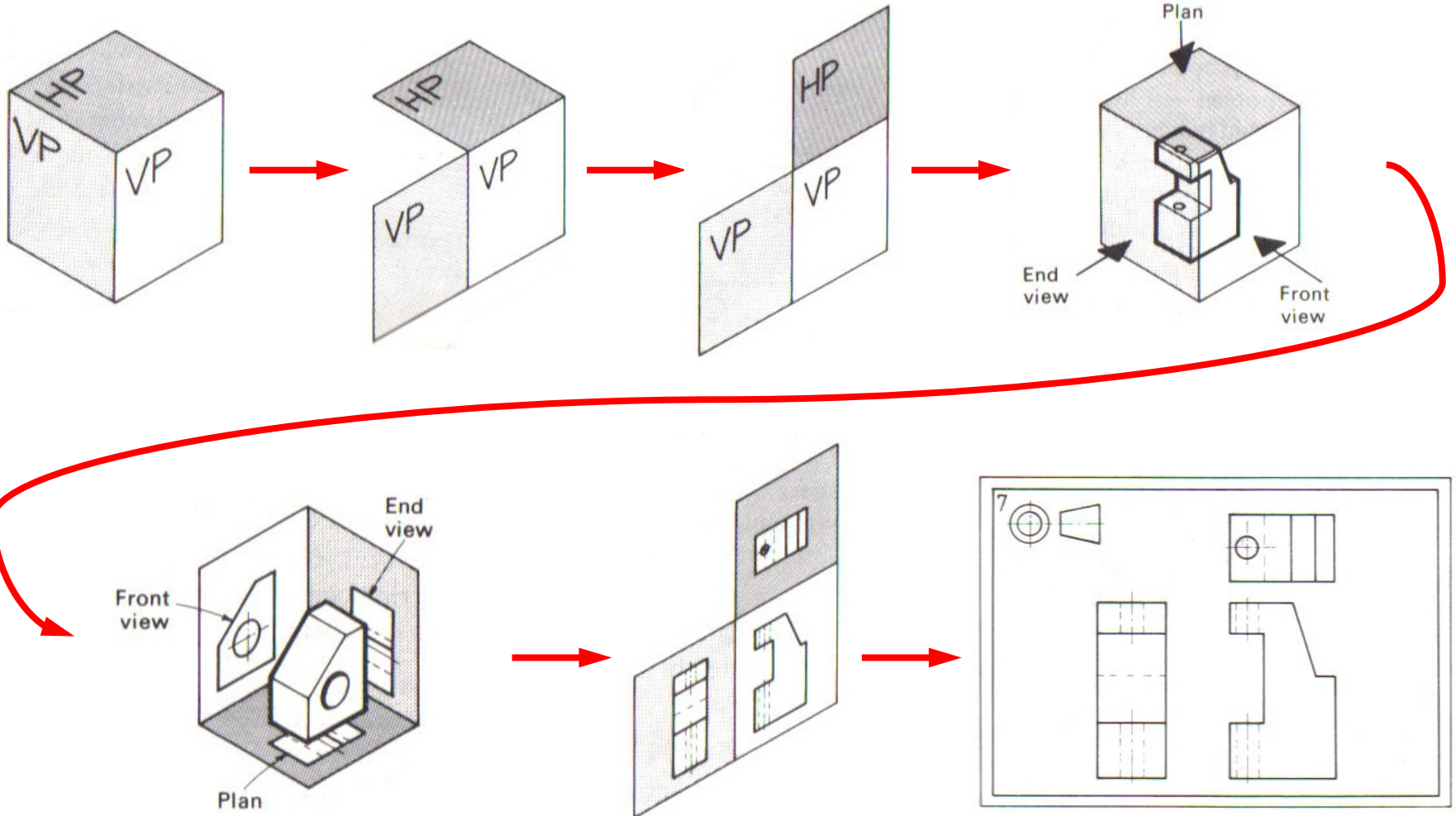
Third Angle Projection

Two Projections



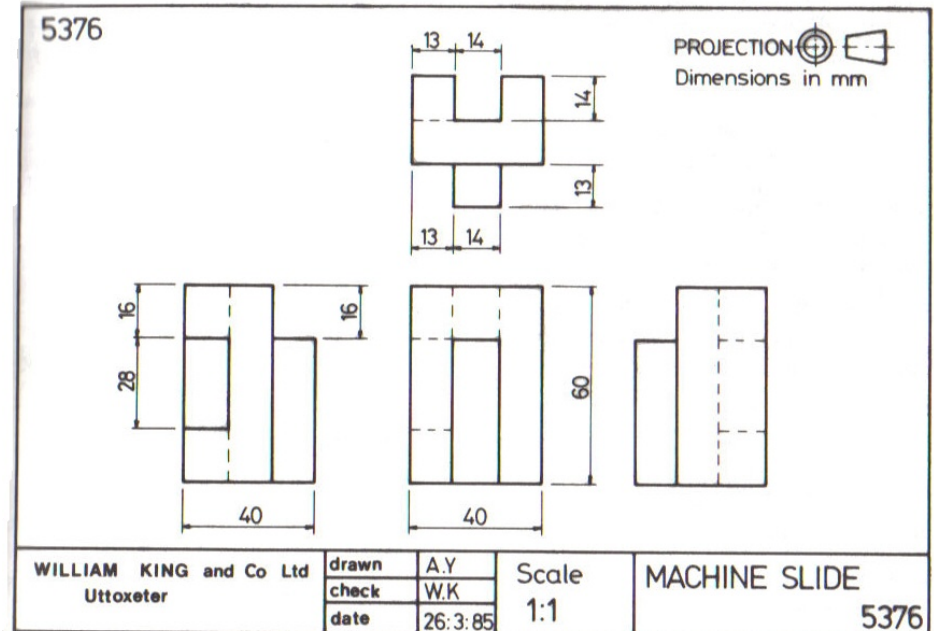
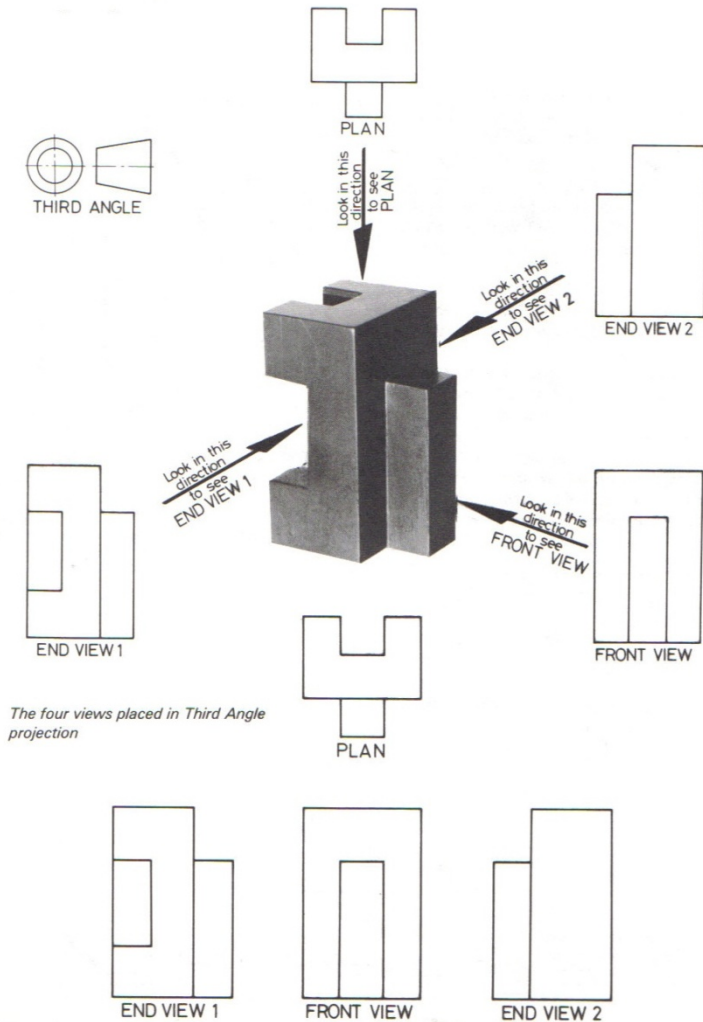
Third Angle Projection

Three Projections



Third Angle Projection

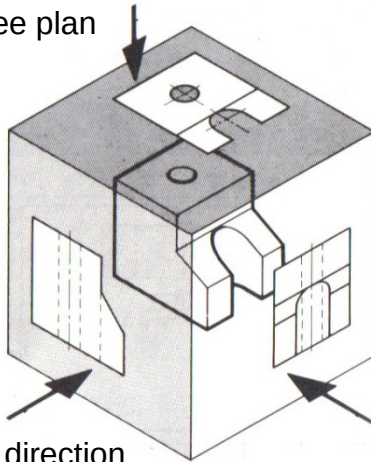
Four Projections



Third Angle View Position

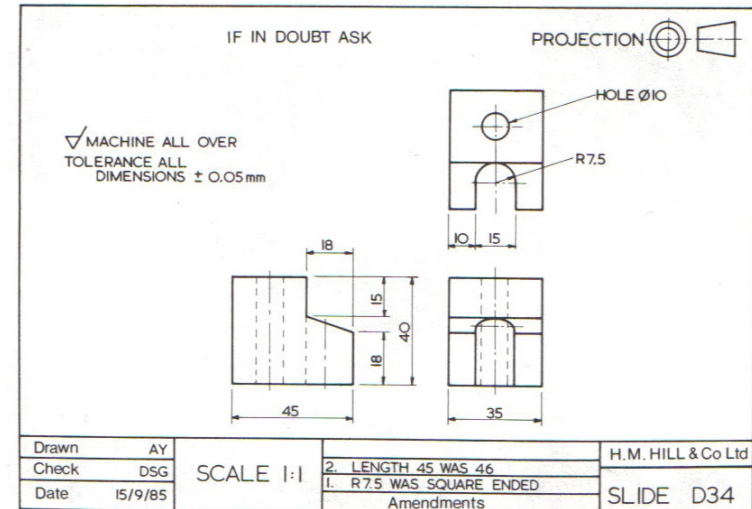
Part Orientation

Look in this direction
to see plan

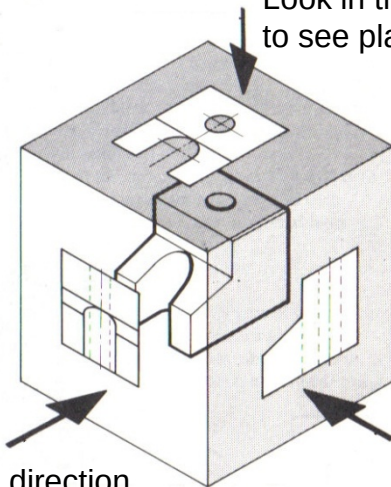


Look in this direction
to see end view

Look in this direction
to see front view

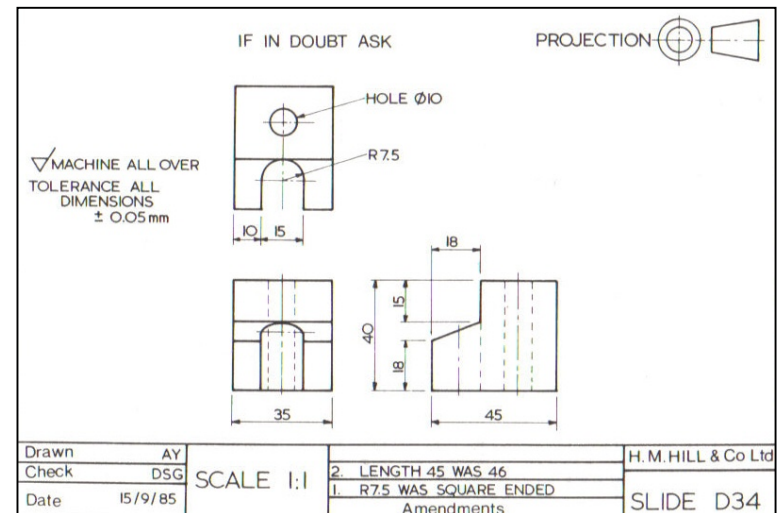


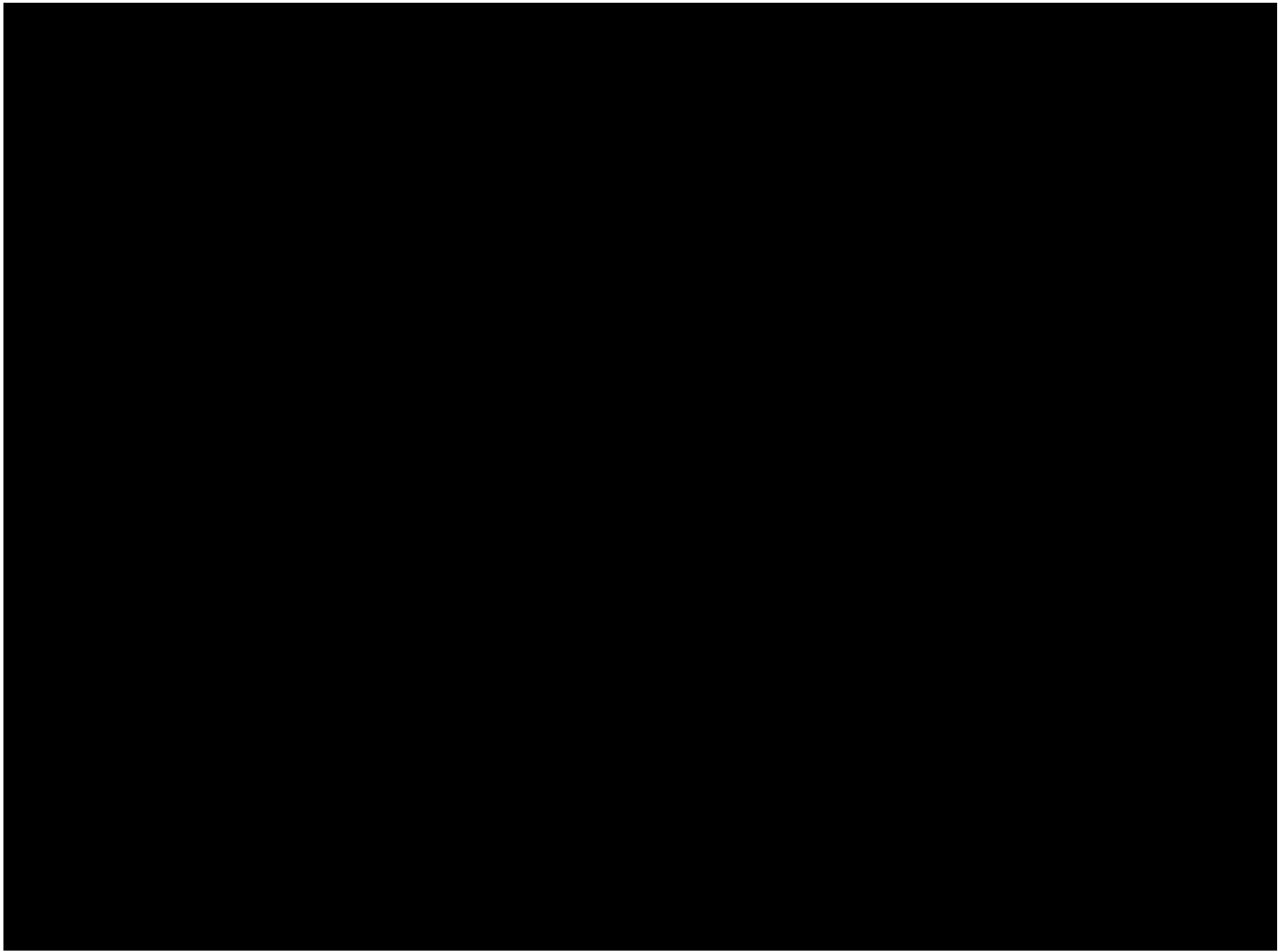
Look in this direction
to see plan



Look in this direction
to see end view

Look in this direction
to see front view



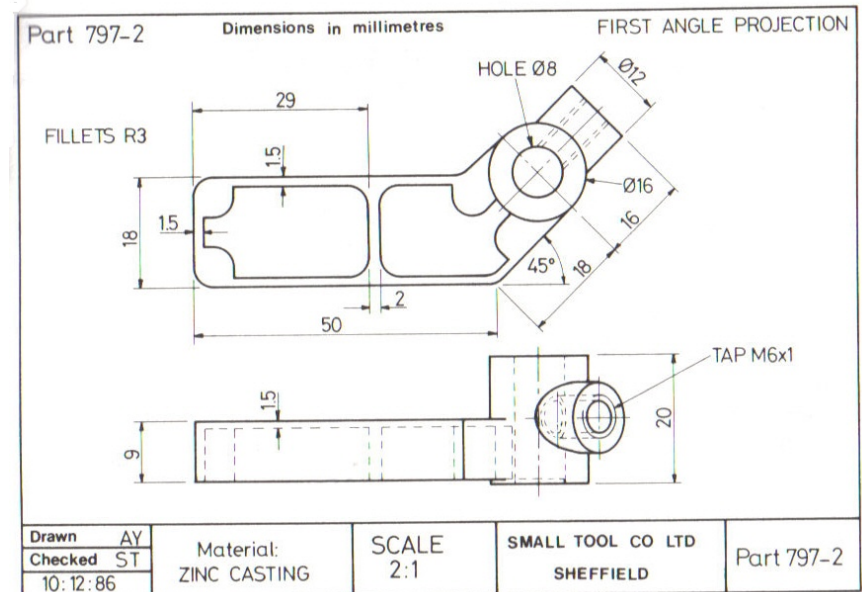
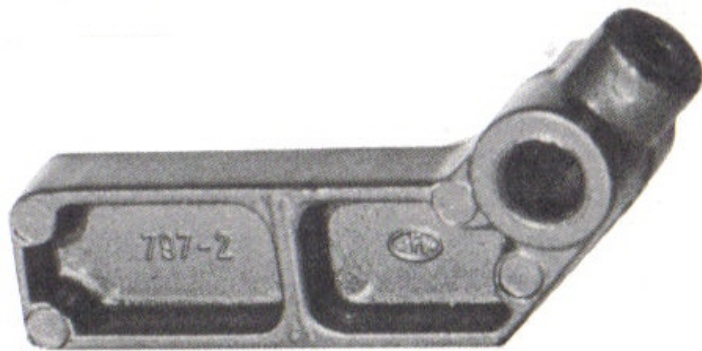


Types of Line and Their Application (BS8888)

Types of Line & Their Applications

Continuous Narrow Line

- Outline of features / visible features
- Dimension lines
- Extension lines

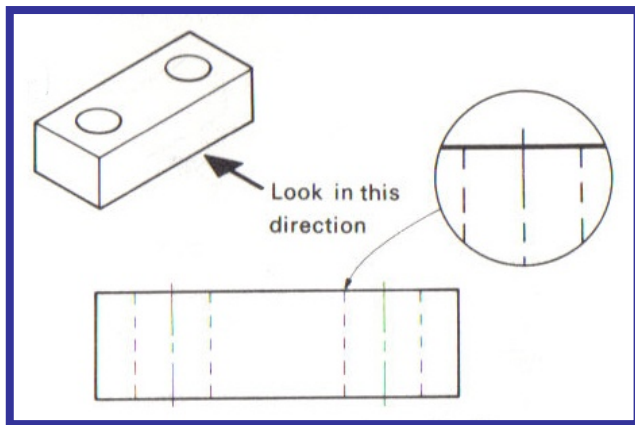


Types of Line & Their Applications

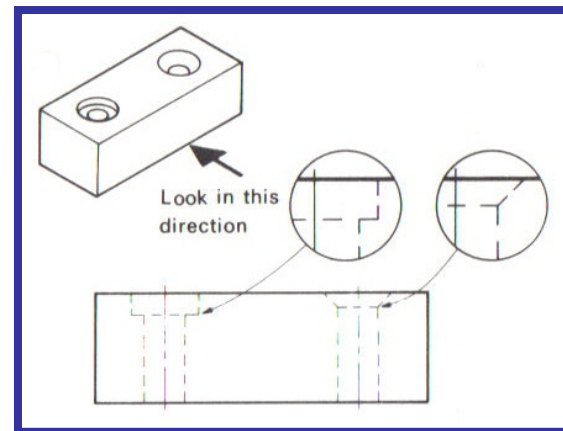
Dashed Line



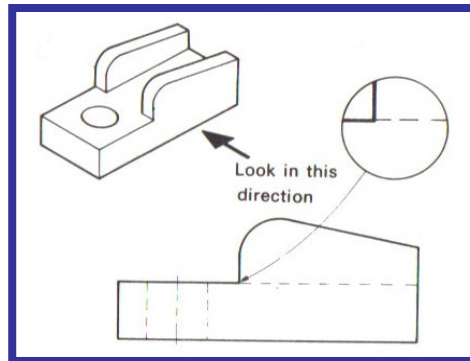
Rule 1 A hidden detail line is a thin dashed line



Rule 2 Dashes should touch visible outline lines



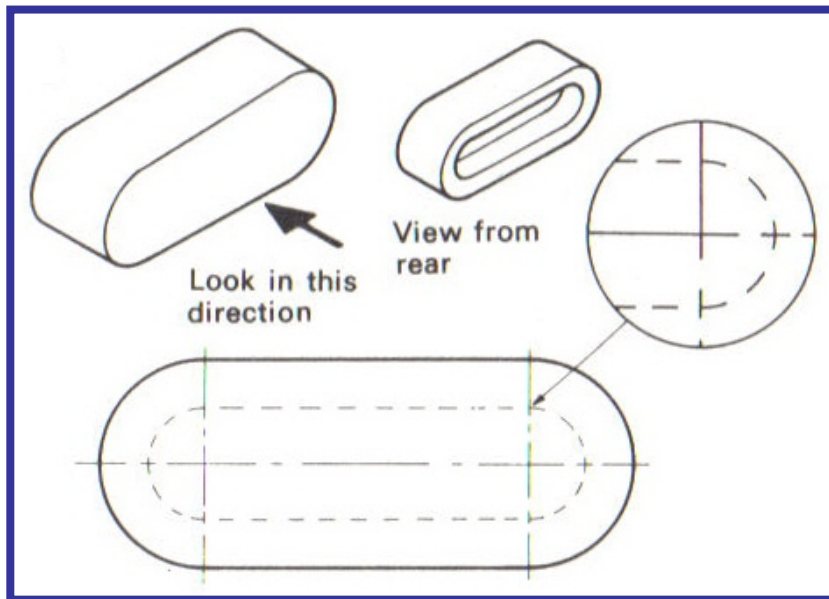
Rule 3 Dashes meet at right angles



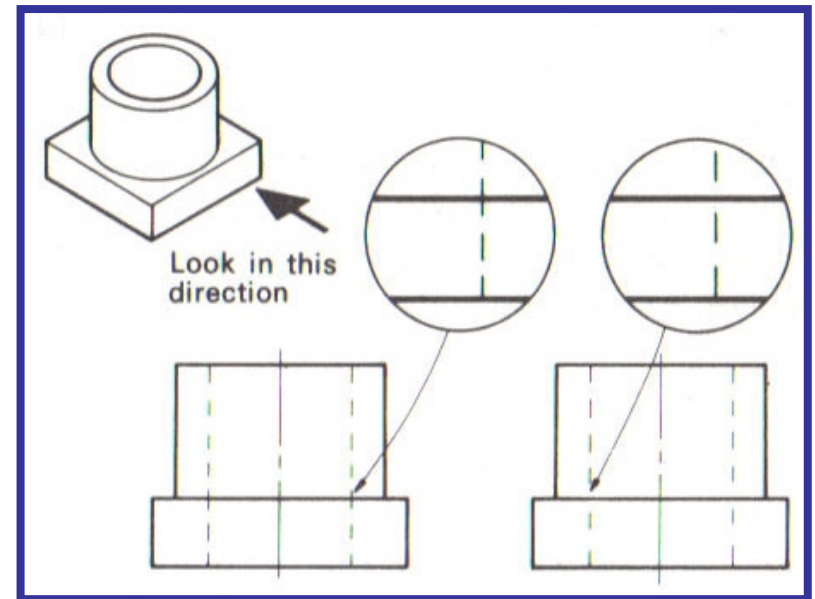
Rule 4 A dash touches where hidden detail is a continuation of a visible outline

Types of Line & Their Applications

Dashed Line



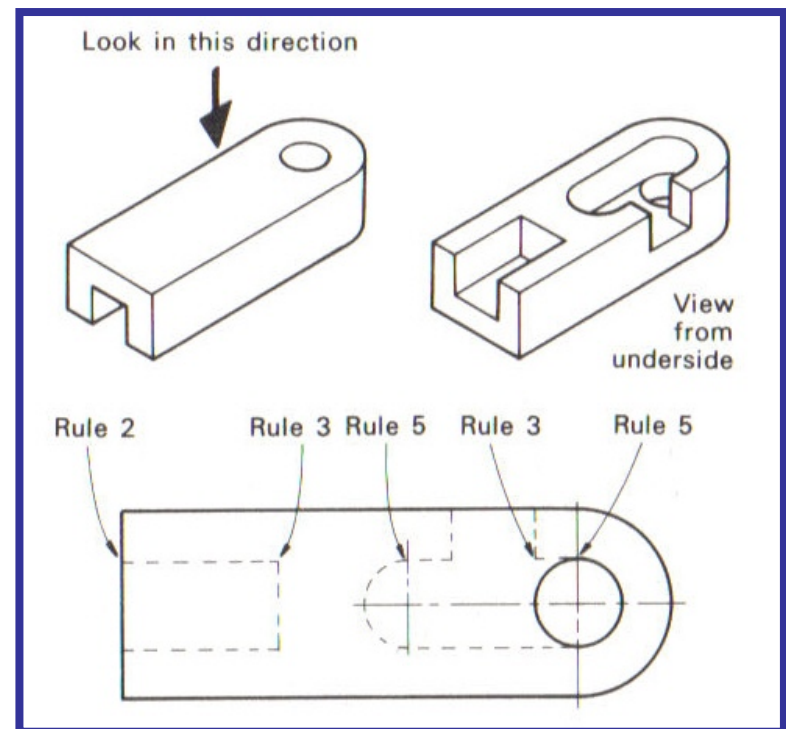
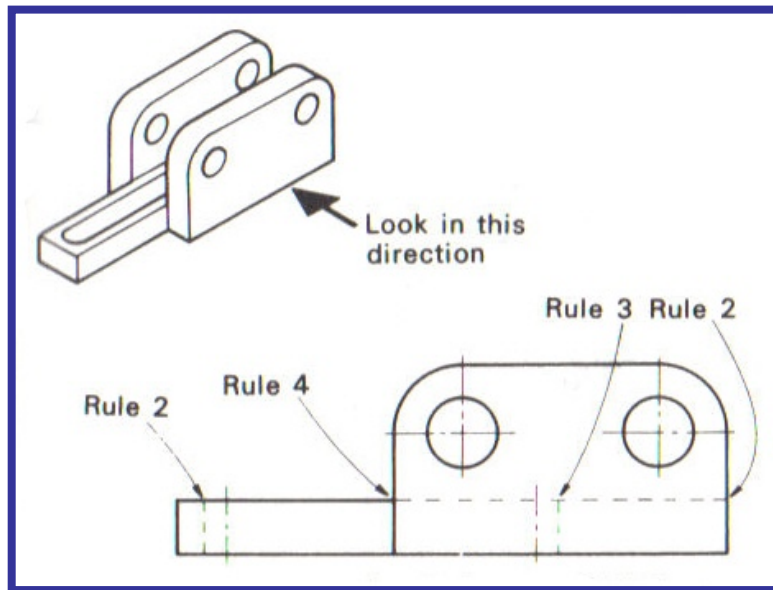
Rule 5 Dashes of arcs touch at points of tangency



Rule 6 Dashes either cross or miss visible lines

Types of Line & Their Applications

Dashed Line



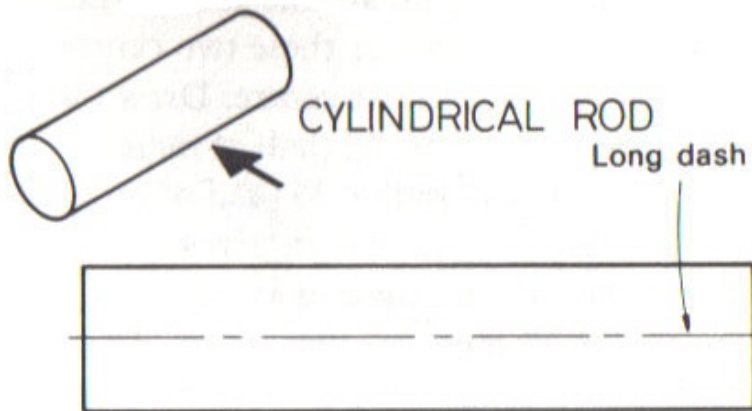
Types of Line & Their Applications

Long Dashed Dotted

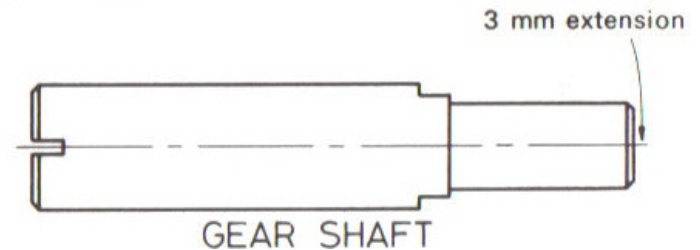
- Centre Lines
- Lines of Symmetry
- Pitch Circle Diameters



Rule 1 A centre line is a thin chain line



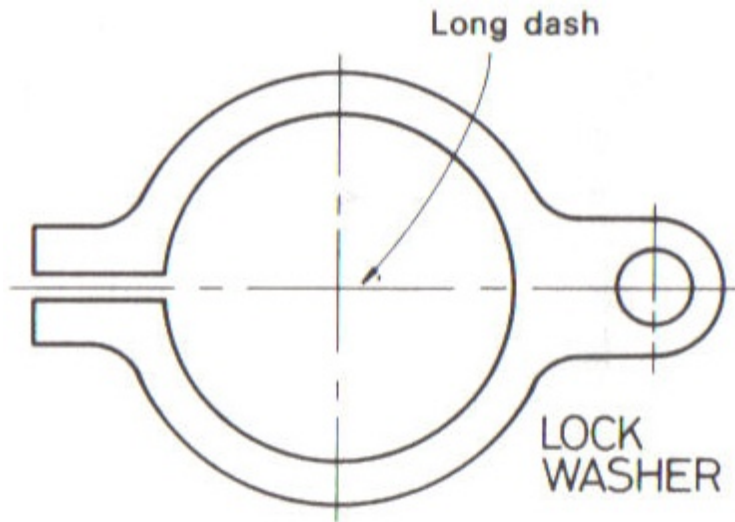
Rule 2 Centre lines begin & end with a long dash



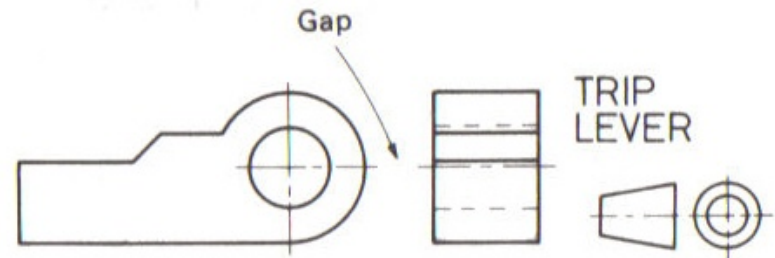
Rule 3 Centre lines extend a short distance beyond the feature

Types of Line & Their Applications

Long Dashed Dotted



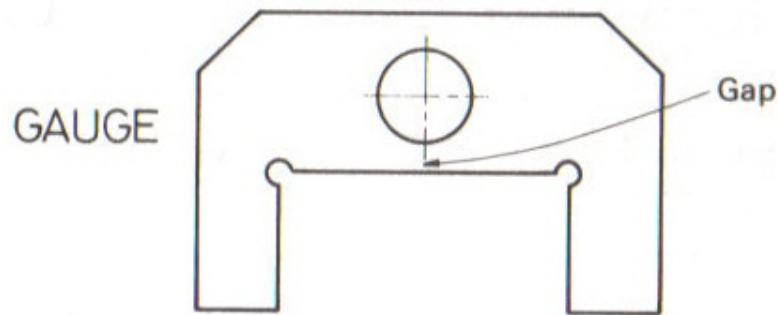
Rule 4 Centre lines should cross with long dashes at centres



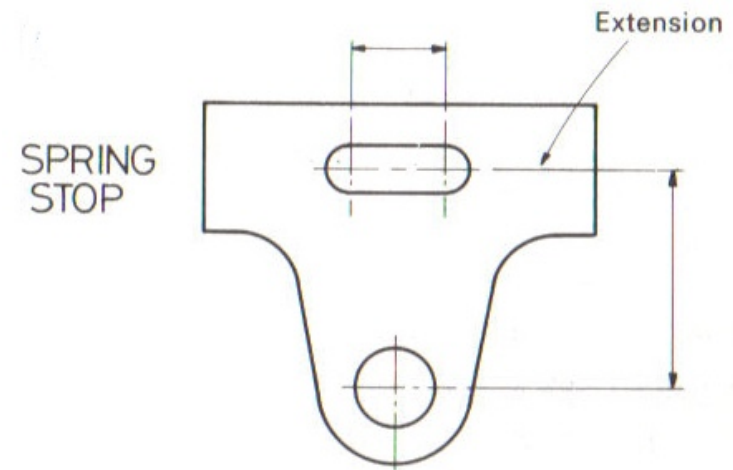
Rule 5 Centre lines do not extend beyond views

Types of Line & Their Applications

Long Dashed Dotted



Rule 6 Centre lines do not stop at other lines



Rule 7 Centre lines can be extended as projection lines for dimensions

Types of Line & Their Applications

Long Dashed Dotted

