151222126 - ENGINEERING GRAPHICS

Lecture 1

Technical Drawing

151222126-Engineering Graphics

- Teaching Staff : Öğr. Gör. Aslı LEBLEBİCİ

- Grading

1.Midterm : % 20

2.Midterm : % 20

Laboratory : % 20

Final Exam : % 40

INTRODUCTION

- What is Technical Drawing?
- Importance of Technical Drawings
- Computer Aided Design (CAD)
- Technical Drawing Materials

What is Technical Drawing?

- Effective means of communicating technical ideas and solutions
- Design process steps
  - Visualization (gorsellestirme)
  - Sketching (taslak)
  - Geometrical models
  - Analysis
  - Detail drawing

Technical Drawing

- Some special signs, symbols and lines are used for communication
- Free hand method, mechanical method or computer method is used for technical drawing,
- Geometry is the foundation of the technical graphics

Technical Drawing

Drawing methods

- Free hand
- Mechanical
- Computer

- Projection techniques
- Standards
- Precise language

History

- Leonardo Da Vinci drawn technical drawings details on his designs (1452-1519)
- They can be counted the first samples of technical drawing
- French mathematician Gaspard Monge (1746-1818) established and systematized the geometry design.
- He obtained the projections
- He showed three dimentions of objects on the image

Geometry

- Solid geometry
  - the geometry of three-dimensional objects, such as cylinders, cubes and spheres, and their relationships.
- Analytical geometry
  - the analysis of geometric structures and properties, principally using algebraic operations and position coordinates.
- Descriptive (tanımlayıcı) geometry
  - the science of analyzing and solving space distances and relationships, using graphics.

Geometry

- Plane
  - Planar figures such as circles, and polygons
- Solid
  - 3D objects such as cylinders

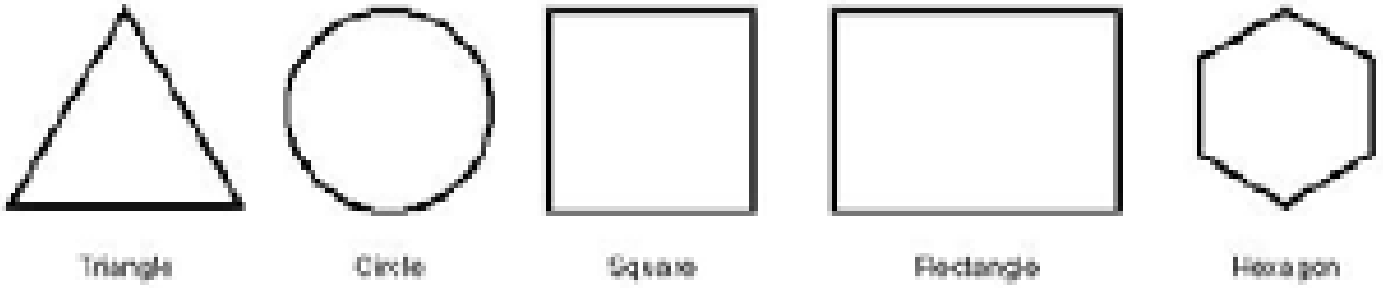


Fig. 1.22

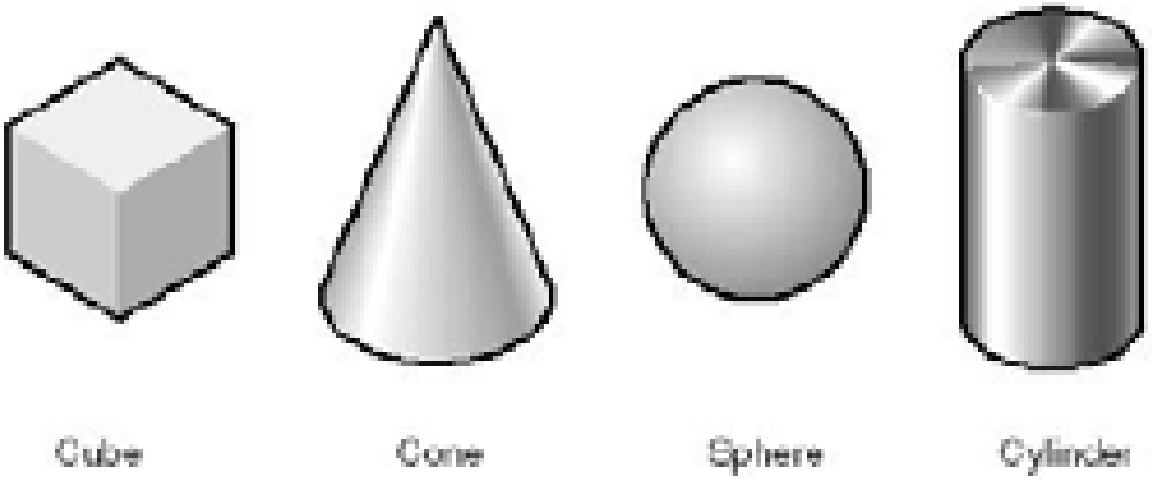


Fig. 1.

Courtesy: Technical Graphics Communication, Bertoline, 2003
Communication, Bertoline, 2003

Computer Aided Design (CAD)

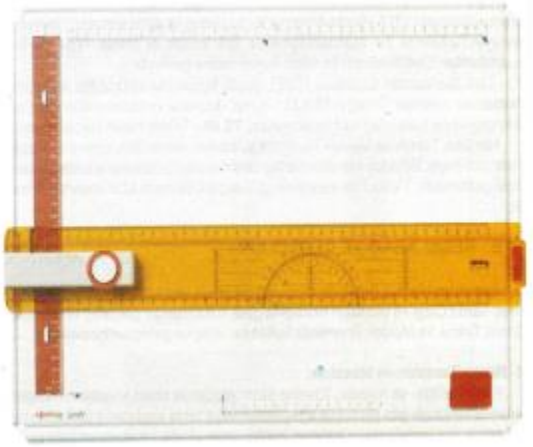
- If two or three-dimensional technical drawings of parts, concstruction materails and any objects are done by using computer technology, it can be named as computer aided design .

- CAD is generally used on engineering departments

- **CAD software:** AutoCAD will be available in the computer lab.Majority of the exercises will be done using AutoCAD.

Technical Drawings Materials

Drawing Table and Board



Technical Drawing Materials

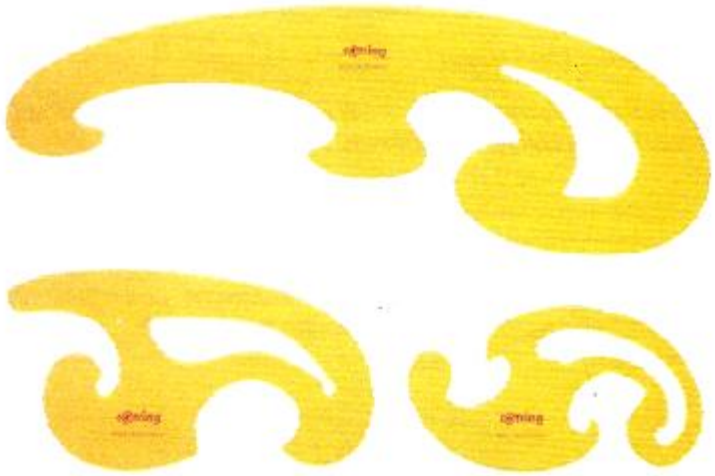
T – Square

Technical Drawing Materials

Architect Scale

Technical Drawing Materials

Irregular Cruve(Pistole)

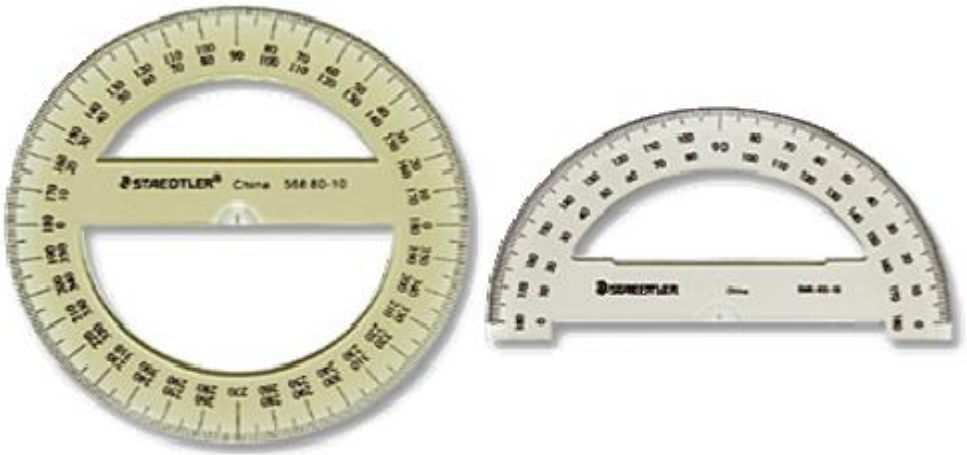


Technical Drawing Materials

Miters (Gönyeler)

Technical Drawing Materials

Protractor(İletki)

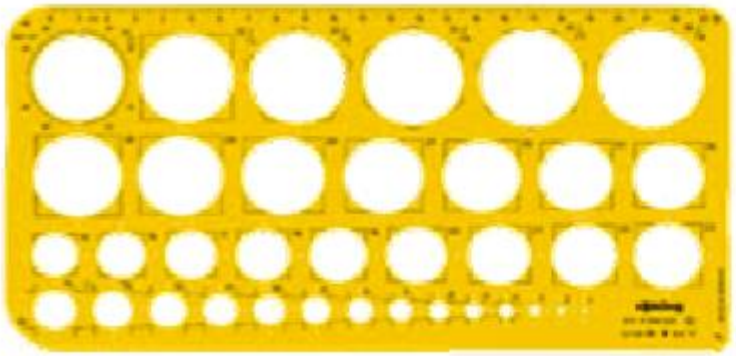


Technical Drawing Materials

Compasses (Pergeller)

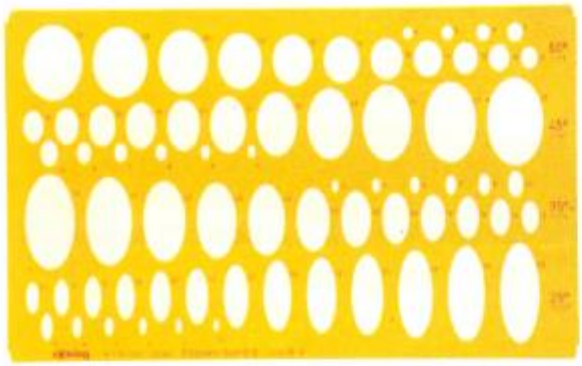
Technical Drawing Materials

Circle and Arc Templates (Daire ve Yay Şablonları)



Technical Drawing Materials

Ellipse Templates (Elips Şablonları)

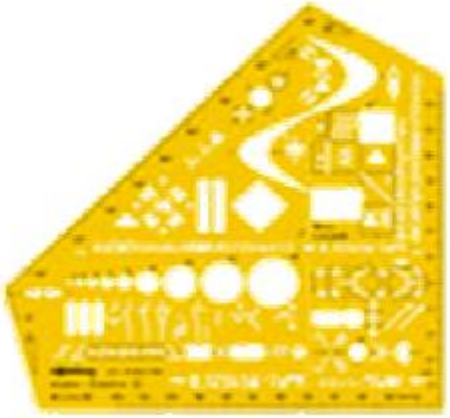


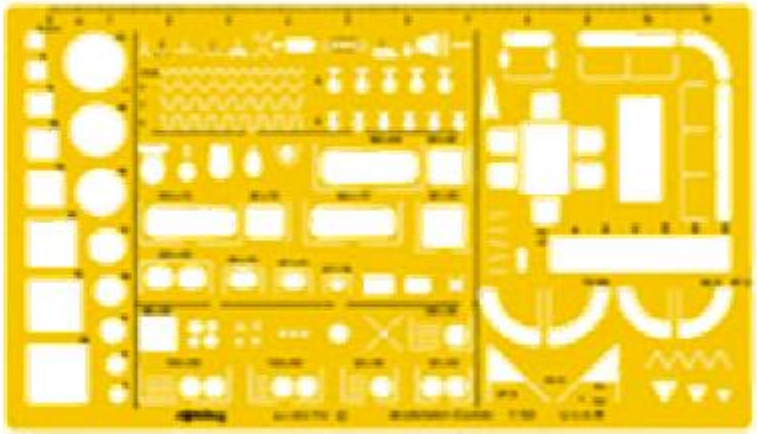
Technical Drawing Materials

Lettering Templates (Yazı Şablonları)

Technical Drawing Materials

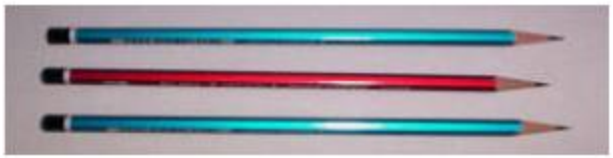
Symbol Templates (Sembol Şablonları)



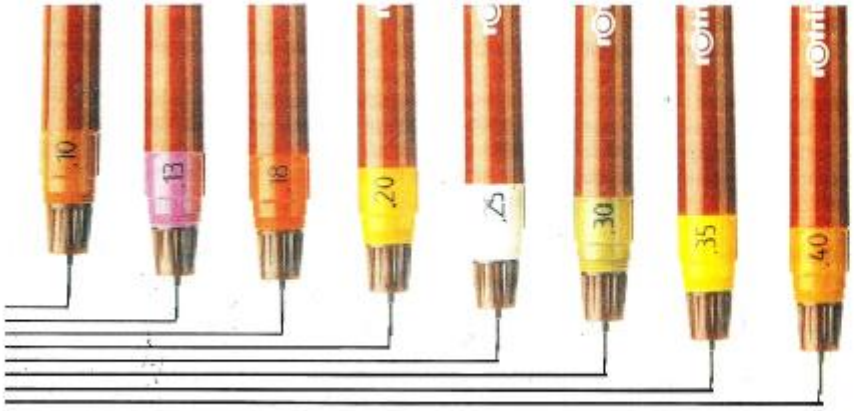


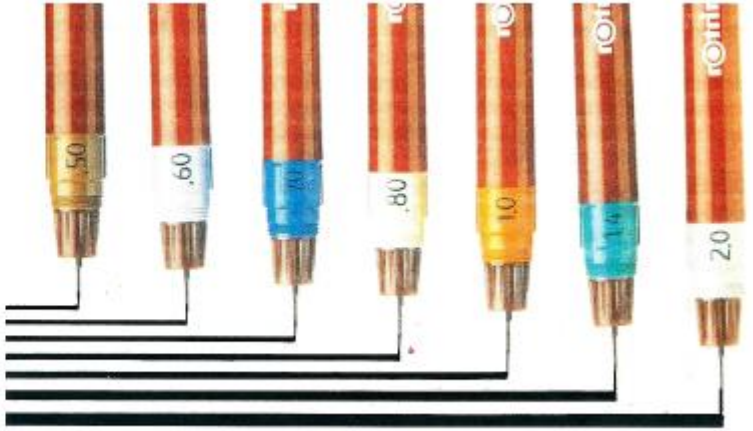
Technical Drawing Materials

Pencils (Kurşun Kalemler)



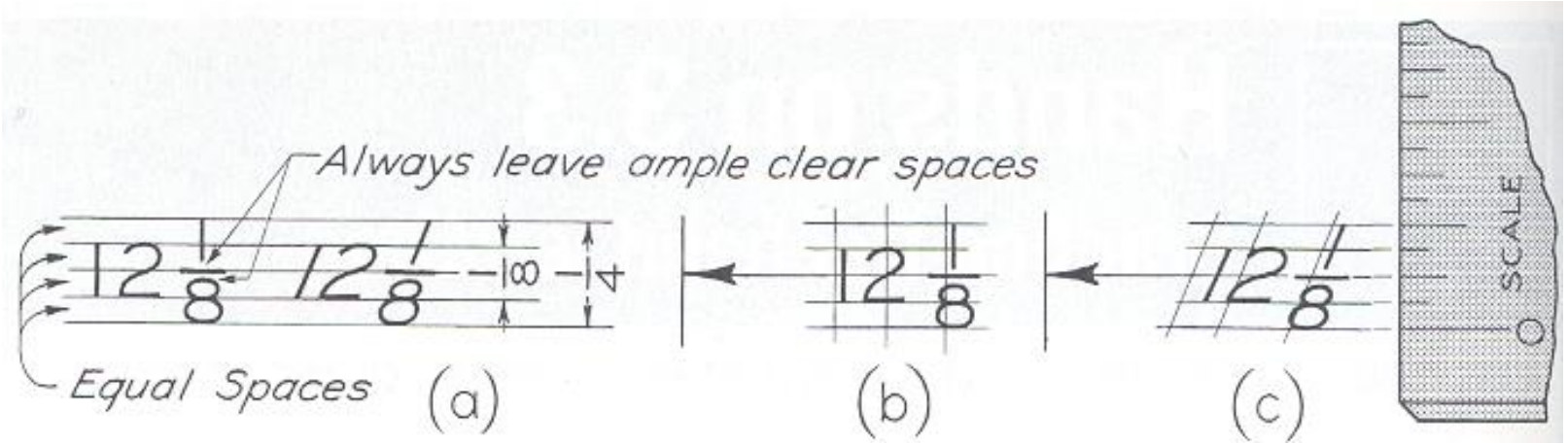
Rapido Pens (Rapido Kalemler)





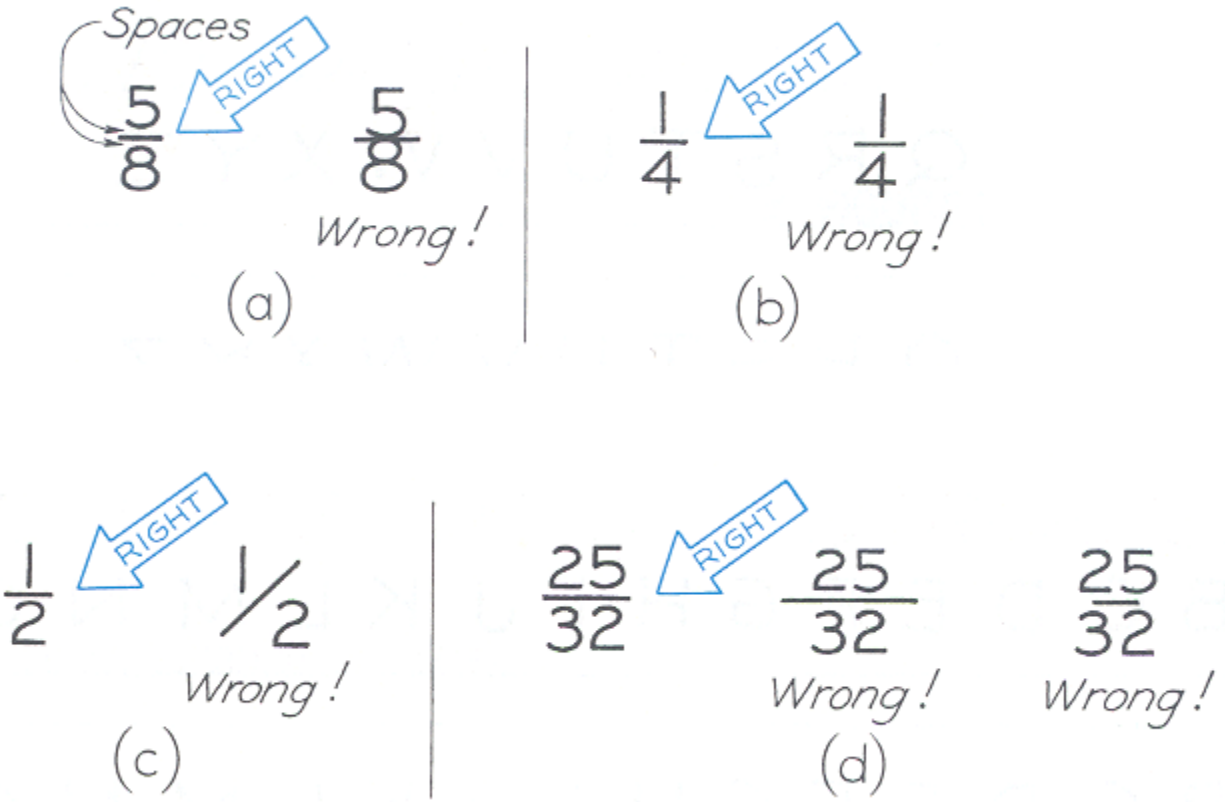
Lettering

- Guidelines for Dimension Figures
- Beginners should use guidelines for whole numbers and fractions. Draw five equally spaced guidelines for whole numbers and fractions, as shown in Figure



Lettering

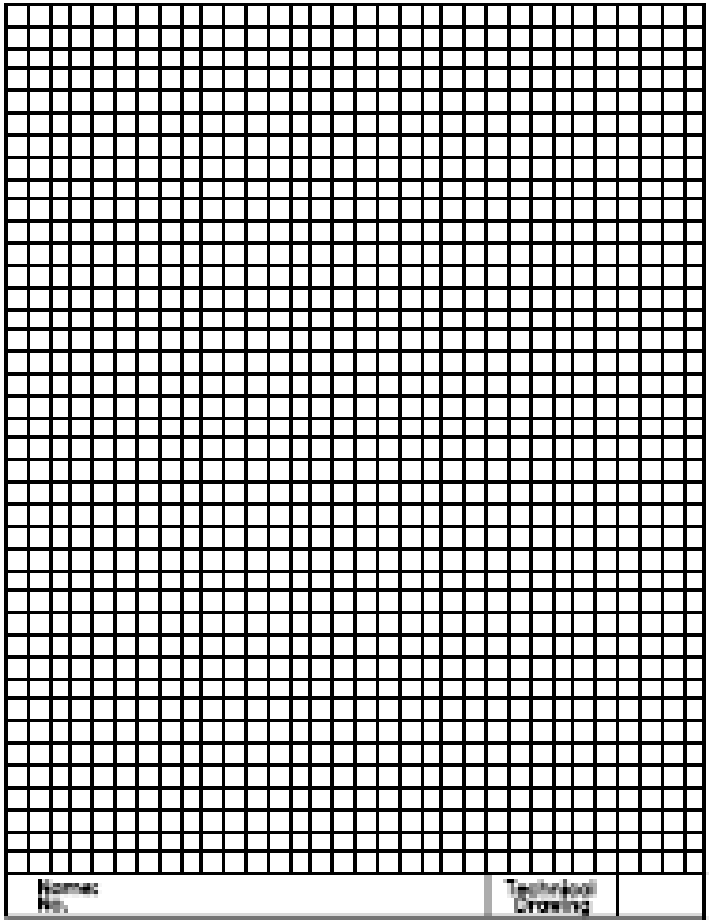
Common Errors

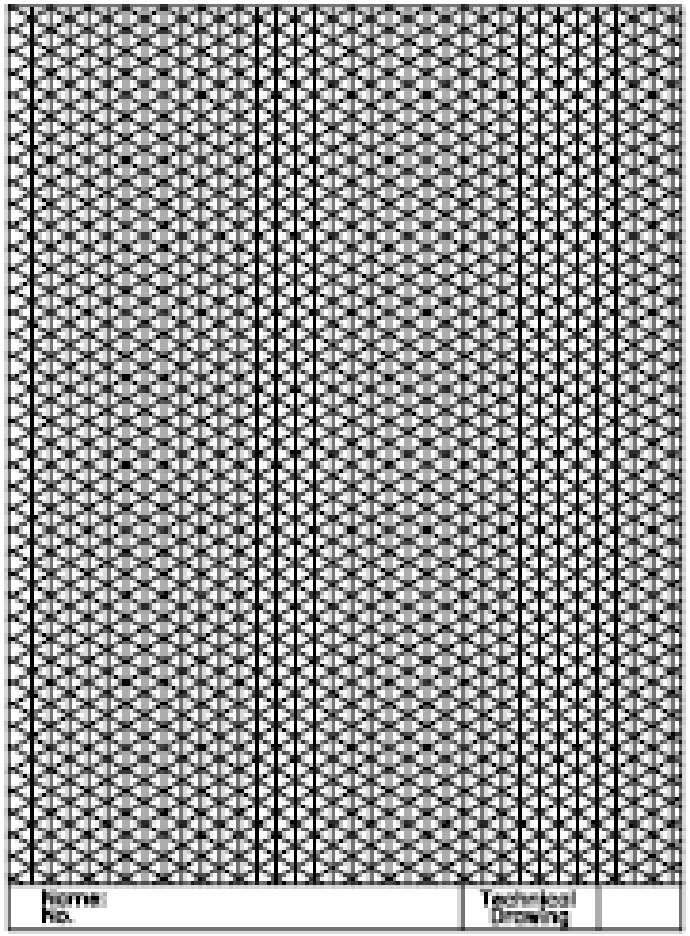


Sketching Paper

- It will be very helpful to have sketch paper with the necessary grids to guide the sketching.

Sketching Paper





Sheet Usages

A0, A1	Technical drawing, poster
A1, A2	Flip charts
A2, A3	Drawings, diagram, big tables
A4	Letter,magazines, forms, catalogues, printer,
A5	Notepad
A6	Cards

Sheet Sizes

ISO A (milimeters)	
A0	841 x 1189
A1	594 x 841
A2	420 x 594
A3	297 x 420
A4	210 x 297
A5	148 x 210
A6	105 x 148
A7	74 x 105
A8	52 x 74
A9	37 x 52
A10	26 x 37

References

- MEGEP
- ITU Technical Drawing Lecture Notes
- DEU Technical Drawing Lecture Notes