

CONVERTED INTO PDF BY MANISH

Engineering drawing

- Every language has its own rules of grammar.
- Engineering drawing also has certain rules
- Rules of grammar : Lines, lettering, and dimensioning

Line Conventions

- ❖ Out lines: Lines drawn to represent visible edges and surface boundaries of objects are called outlines. These are continuous thick lines.



Visible Object - Thick





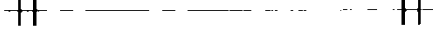
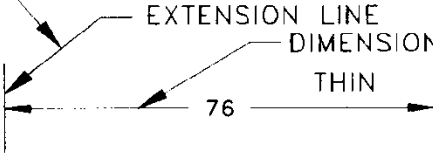
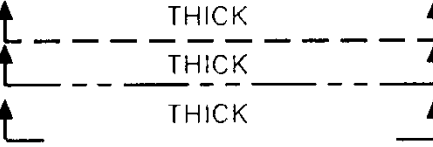




- ❖ Dimension Lines - These are continuous thin lines. They are terminated at the outer ends by pointed arrowheads touching the extension lines.
- ❖ Extension Lines - solid thin lines showing point or line to which dimension applies. They extend by about 3 mm beyond the dimension lines.
- ❖ Hidden or dotted line- Interior or hidden edges and surfaces are shown by hidden lines.



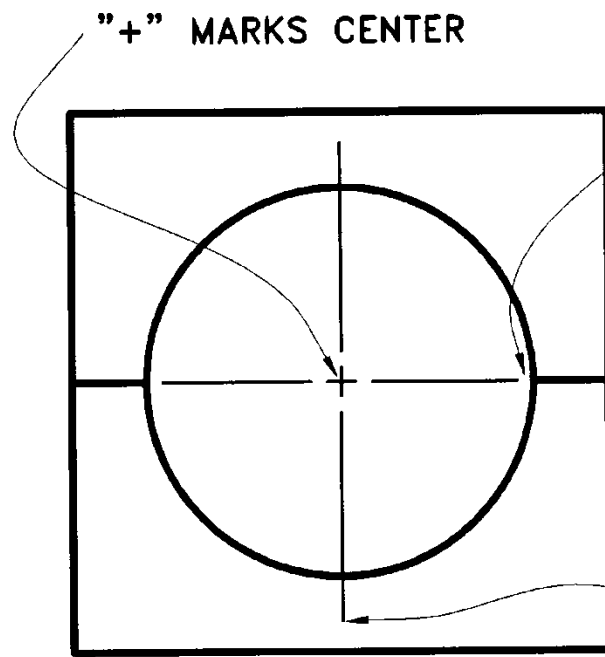
Hidden - Thin

- ❖ **Centre line:** Centre lines are drawn to indicate the axes of cylindrical, conical object and also show the centre of circles and arcs.
- ❖ **Cutting-Plane and Viewing-Plane Lines** – indicate location of cutting planes for sectional views and the viewing position for removed partial views

Sketching Line types

VISIBLE OBJECT LINES		THICK	THICK LINE APPROXIMATE WIDTH: 0.6mm
HIDDEN LINE		THIN	THIN LINE APPROXIMATE WIDTH: 0.3mm
SECTION LINE		THIN	
CENTERLINE		THIN	
SYMMETRY LINE		THIN	THICK
DIMENSION LINE EXTENSION LINE AND LEADER LINE		THIN	
CUTTING-PLANE LINE OR VIEWING-PLANE LINE		THICK	
BREAK LINE		THICK	SHORT BREAKS LONG BREAKS
PHANTOM LINE		THIN	
STITCH LINE		THIN DOTS	
CHAIN LINE		THICK	

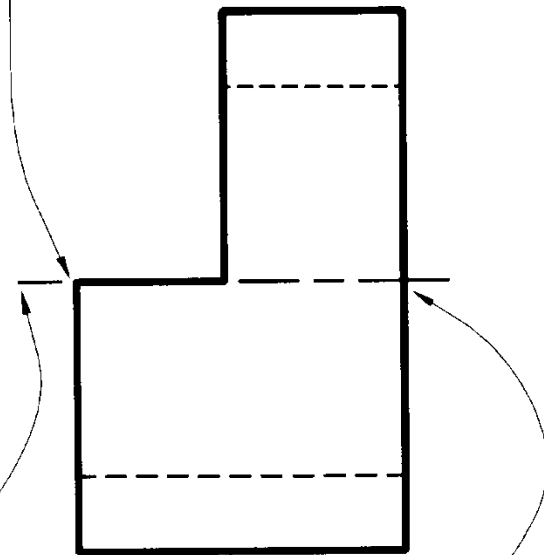
Centerline Conventions



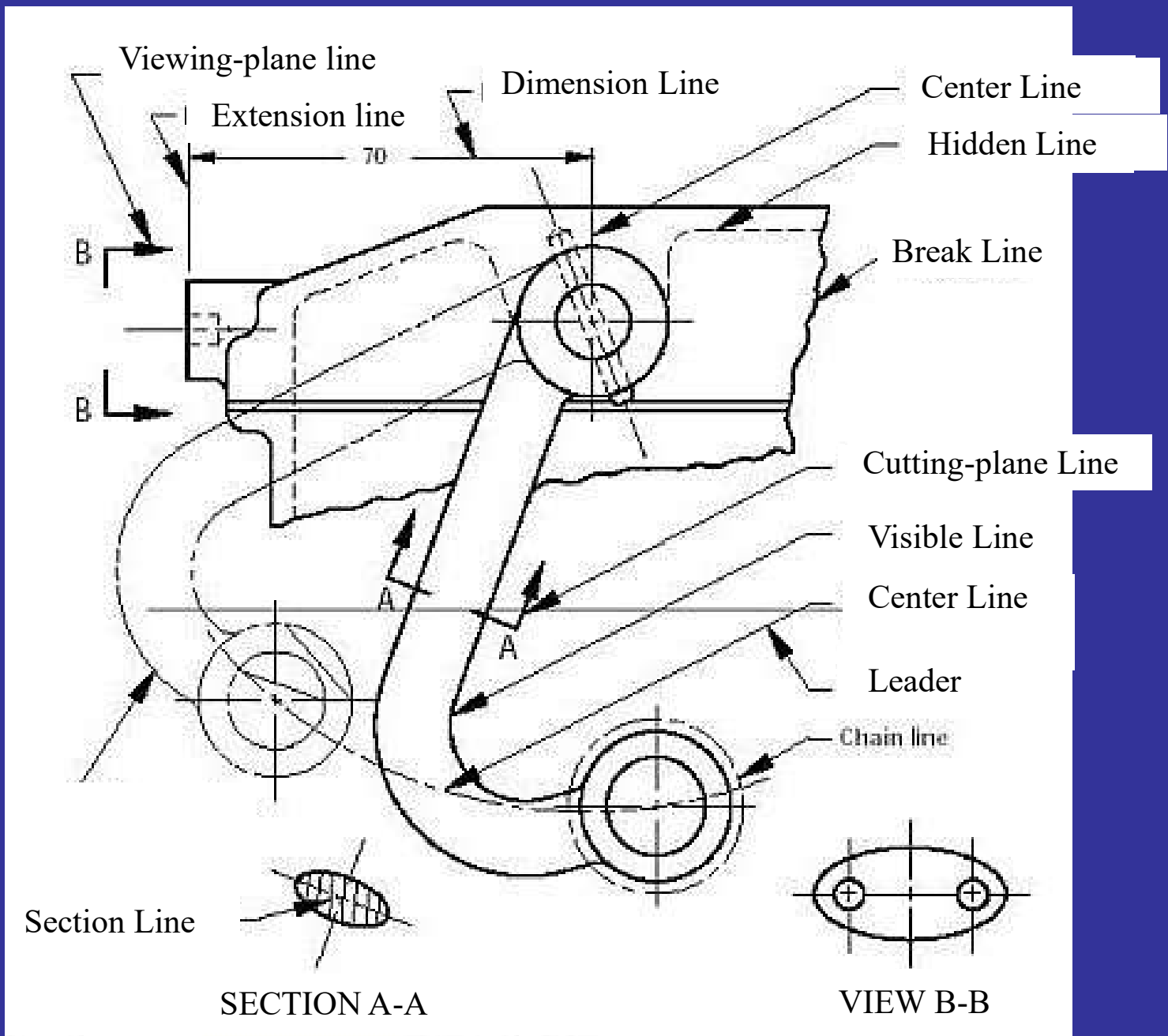
"+" MARKS CENTER

EXTEND APPROX. 9mm (.375")

LEAVE GAP WHEN EXTENDING
VISIBLE LINE

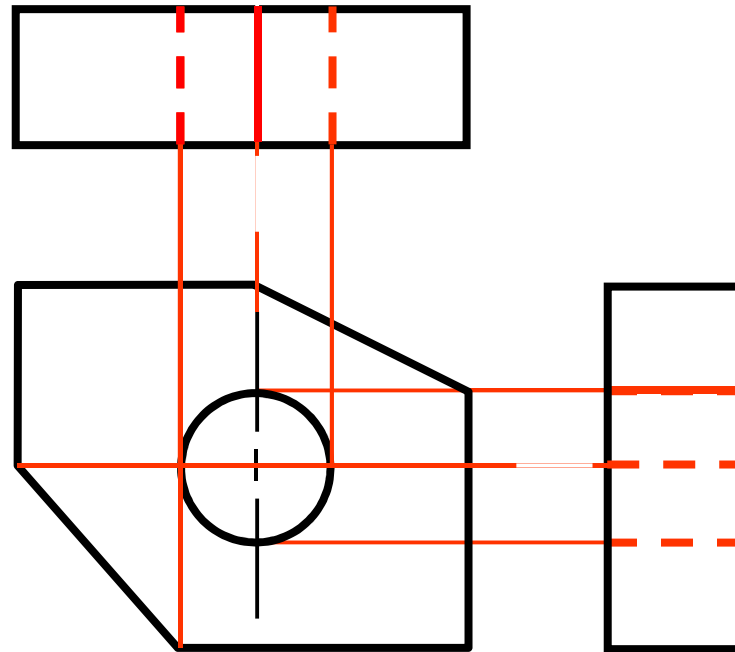
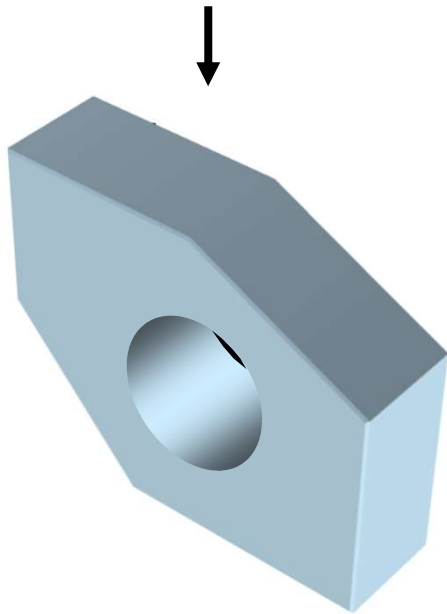


CROSS VISIBLE LINE
WITH LONG DASH



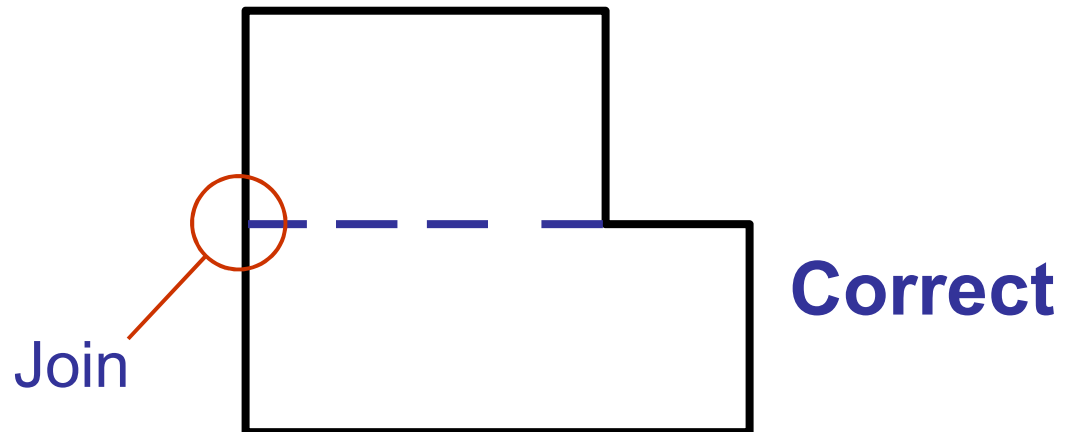
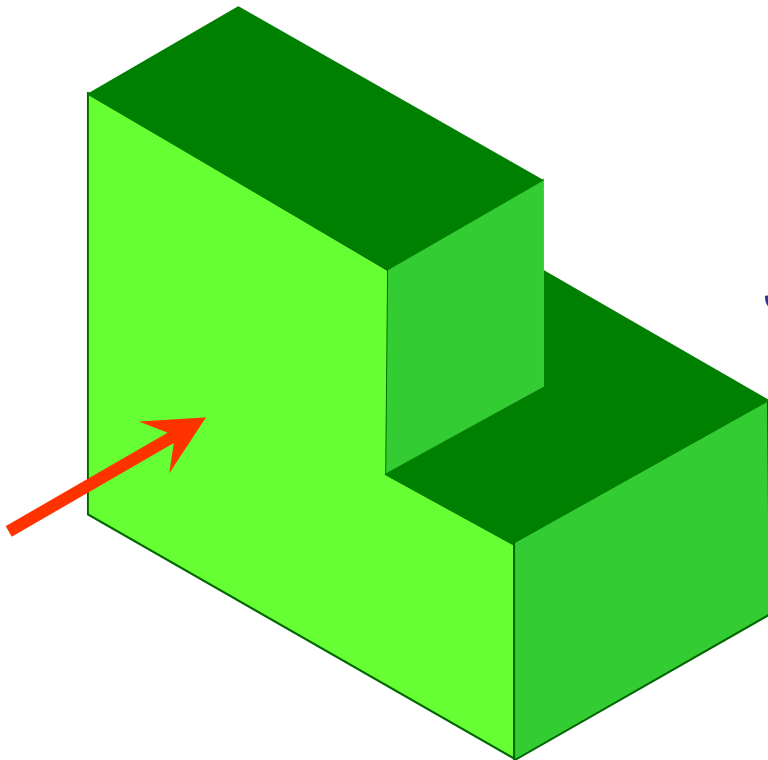
PRECEDENCE OF LINE

Order of importance



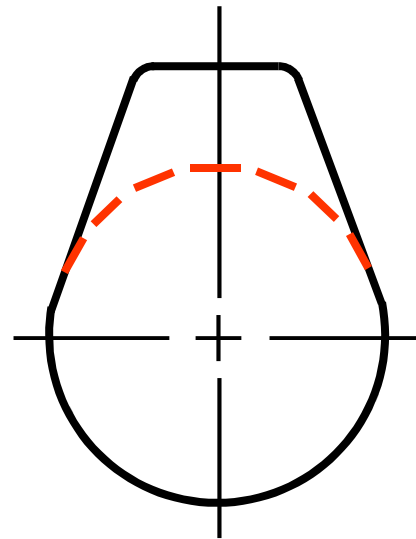
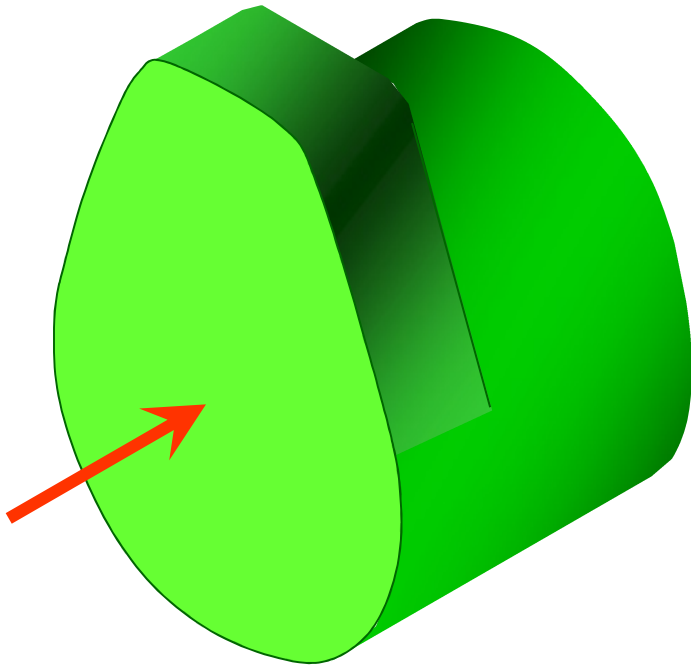
HIDDEN LINE PRACTICE

- Hidden line should join a visible line, **except** it extended from the visible line.



HIDDEN LINE PRACTICE

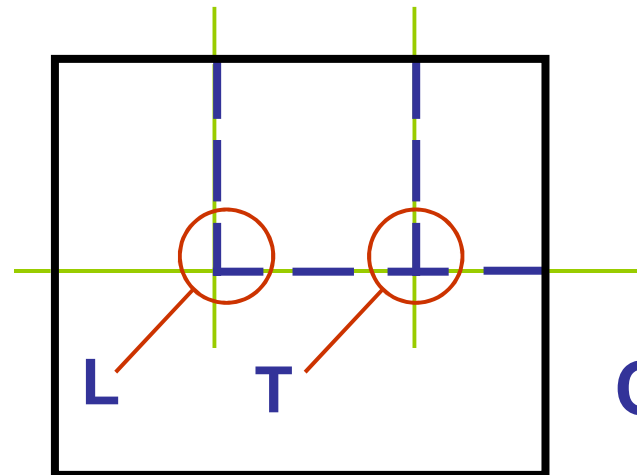
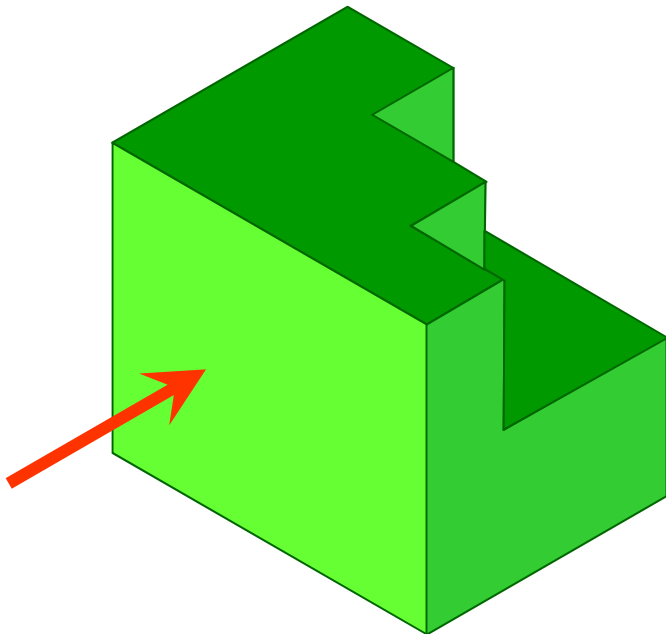
- Hidden line should join a visible line.



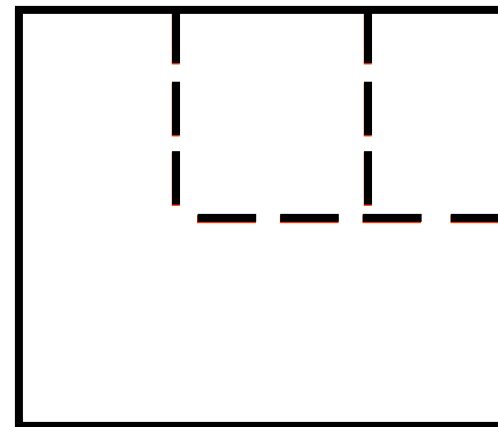
Correct

HIDDEN LINE PRACTICE

- Hidden line should intersect to form **L** and **T** corners.



Correct



No !

Lettering

Writing of titles, dimensions, notes and other important particular on a drawing is called lettering.

Lettering should be done properly in clear and uniform style.

Lettering technique: Horizontal line of the letter are drawn from the left to right. Vertical, inclined lines are drawn from top to bottom.

Single stroke letter

The word single stroke should not be taken to mean that the letter should be made in one stroke without lifting the pencil

It actually means that the thickness of the line of the letter should be obtained in one stroke of the pencil.

Lettering

- ABCDEFGHIJKLMNOPQRSTUVWXYZ

Standard letter size

T O M Q V A X Y --- 6 mm H & 6 mm W

W --- 6 mm H & 8 mm W

I --- 6 mm H & 0 mm W

Remaining letter--- 6 mm H & 5 mm W

For numbers

1 -- 6 mm H & 0 mm W

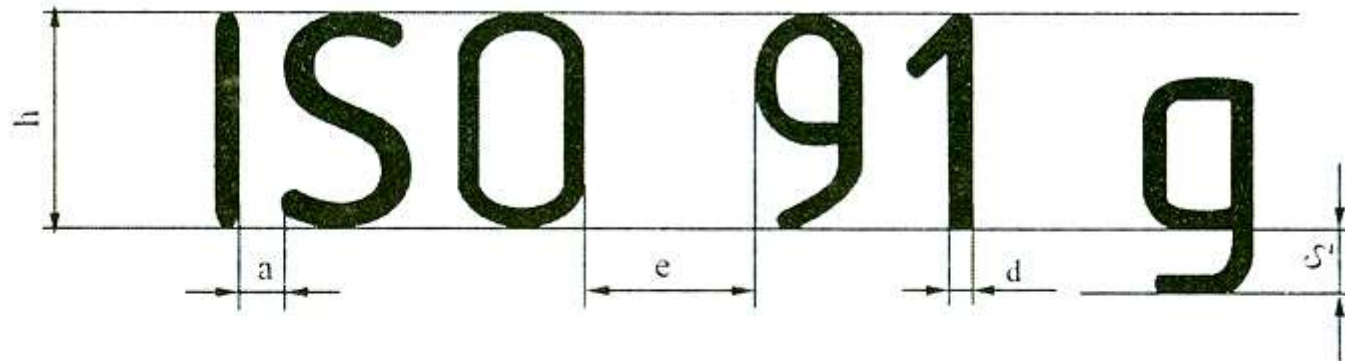
others -- 6 mm H & 5 mm W

General letter size for use

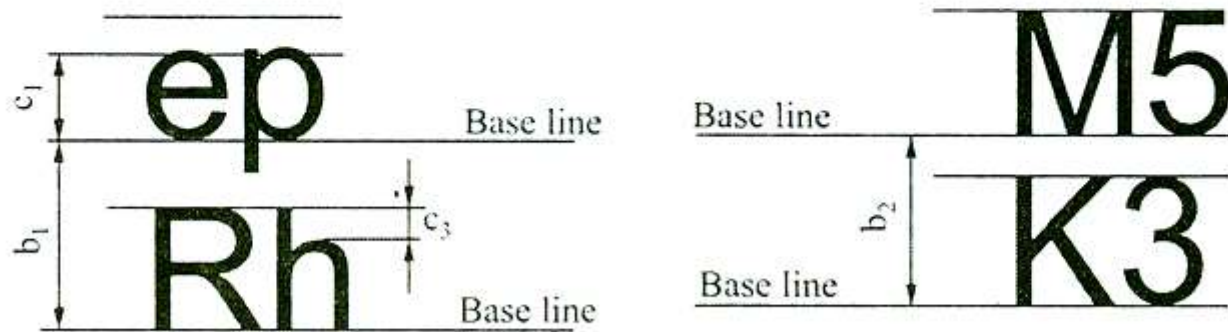
- Main titles – 6 to 8 mm
- Sub titles – 3 to 6 mm
- Notes/dimensions figures – 3 to 5 mm
- Space between letters – $H/5$
- Space between words- $6H/5$

Lettering proportions

Characteristic of lettering	Multiple of h	Dimensions (mm)		
Lettering height h	$(10/10) h$	5	7	10
Height of lower case letters c_1	$(7/10) h$	3.5	5	7
Spacing between character a	$(2/10) h$	1	1.4	2
Minimum spacing between baselines b_1	$(15/10) h$	7.5	10.5	15
Minimum spacing between baselines b_2	$(13/10) h$	6.5	9.1	13
Line width d	$(1/10) h$	0.5	0.7	1
Spacing between words e	$(6/10) h$	3	4.2	6



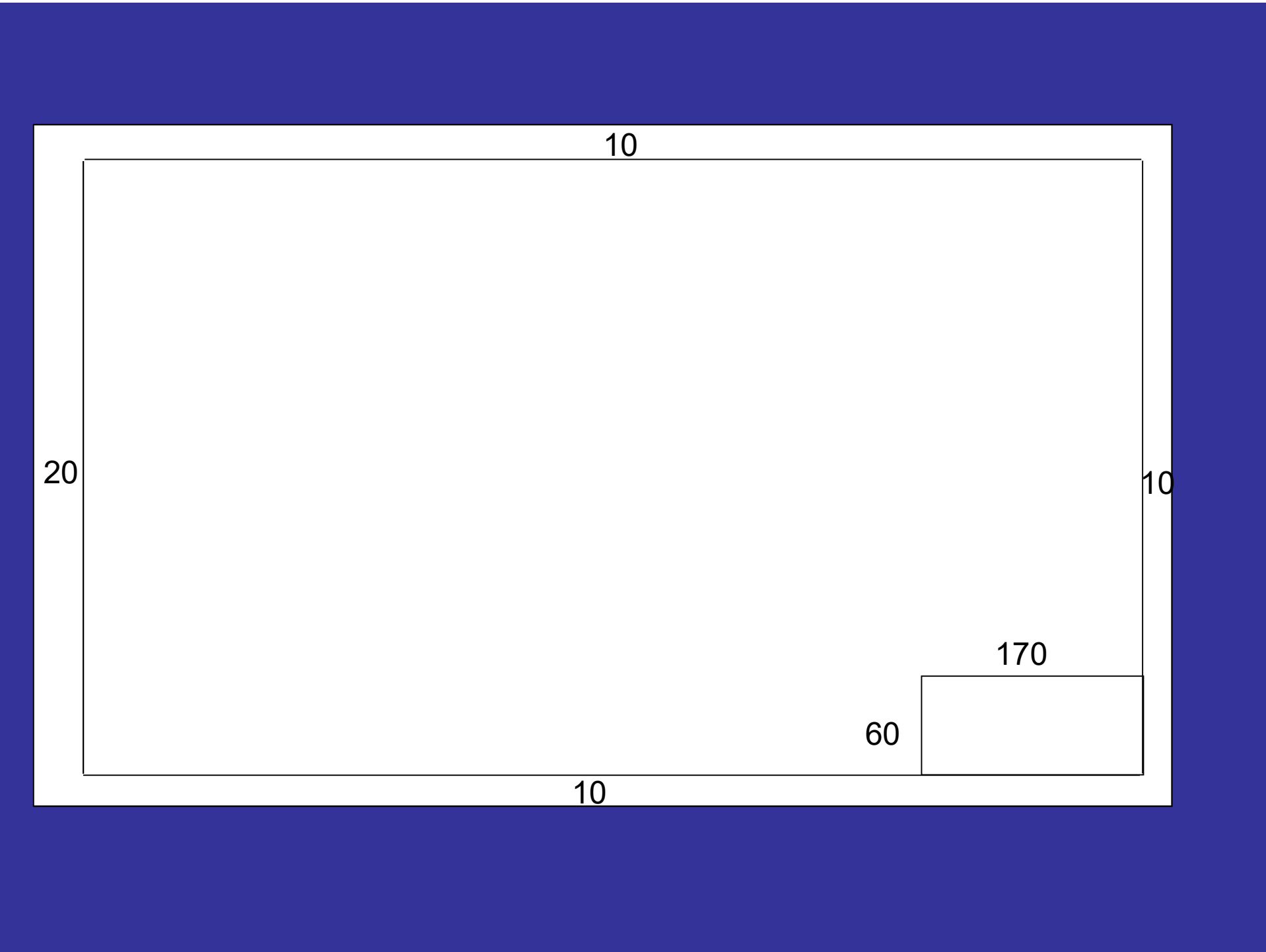
Dimensions and Spacing of Letters.



Lettering.

Drawing sheet





170

				4
15				
				4
15				
60				
10				
10				
10				
				3

60

60

50

15

D. S. C. ANAND

15

DRAWING PRACTICE

10

YOUR NAME

10

SEM-FIRST

DATE-

SCALE:

10

ROLL NO-

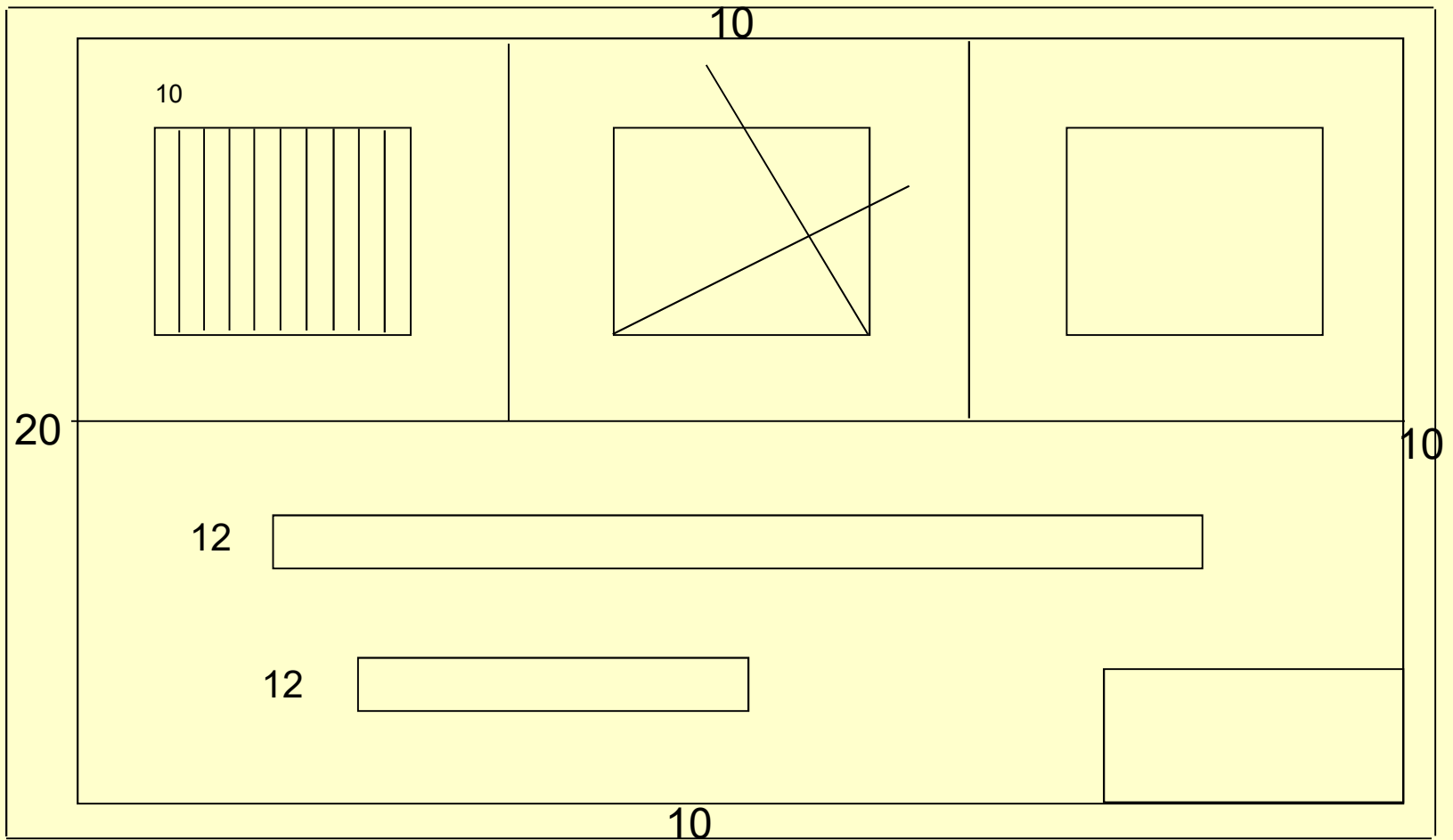
SIGN

DRG NO:

4

4

3



Thank you