

Computer-Aided Design

Fundamentals of Dimensioning |

DISPLAYING DIMENSIONS

- Continuous thin line (0.25 thickness)
- 3.5 mm text height
- 10-15 mm between dimension line and drawing
- 5-7 mm between parallel dimensions
- Dimension value is written above the dimension line for horizontal dimensions and to the left of the dimension line for vertical dimension.
- Dimensions should be outside the drawing, unless it is necessary, no dimensions should be given inside.
- Arrow size should be 3-4 times the arrow height. The arrow size must remain constant throughout a drawing.

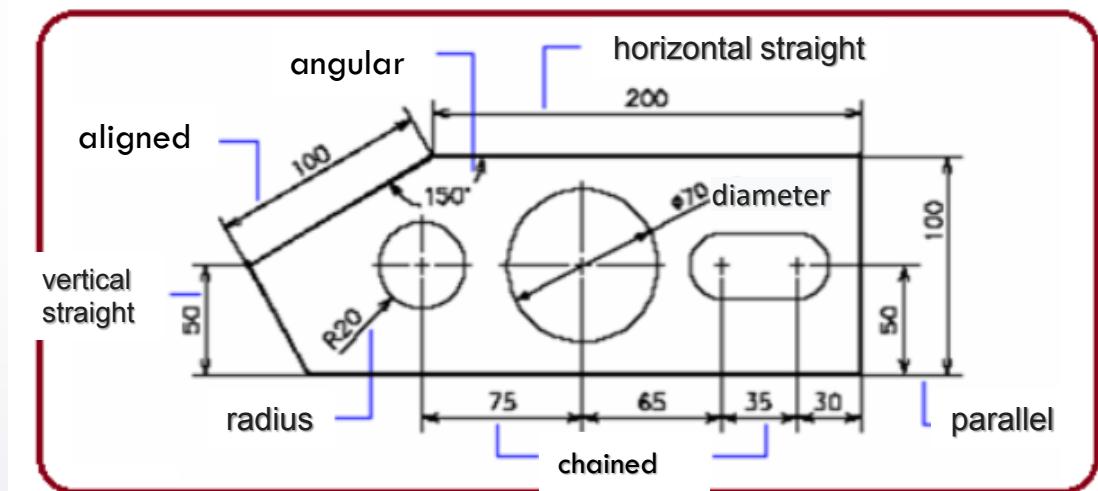
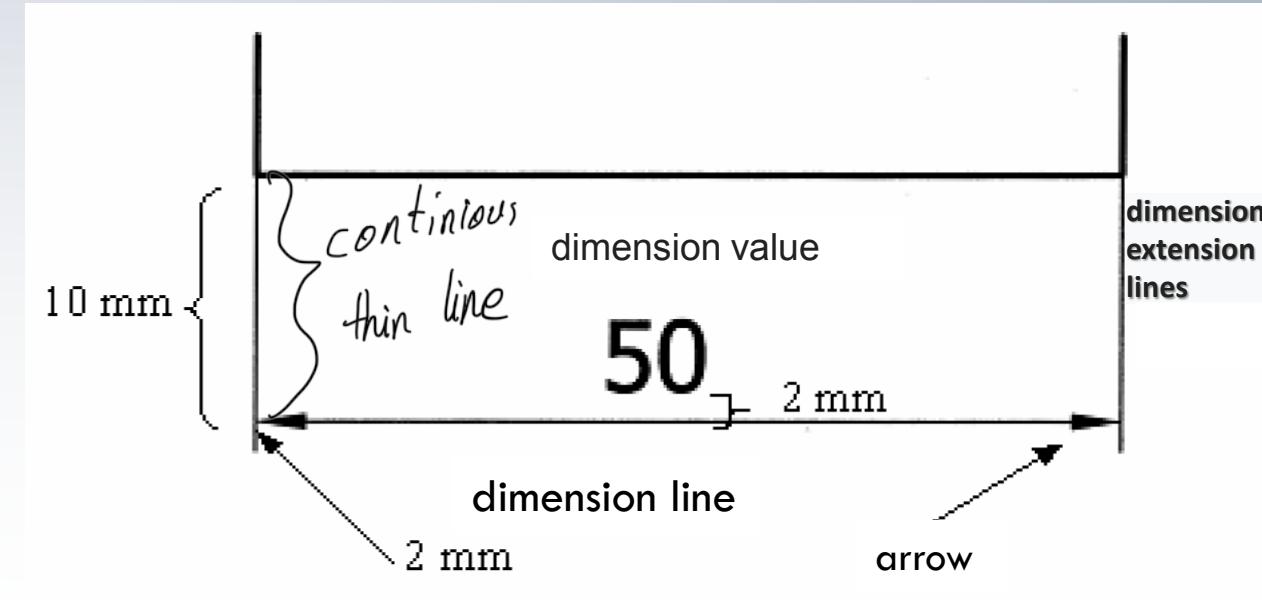
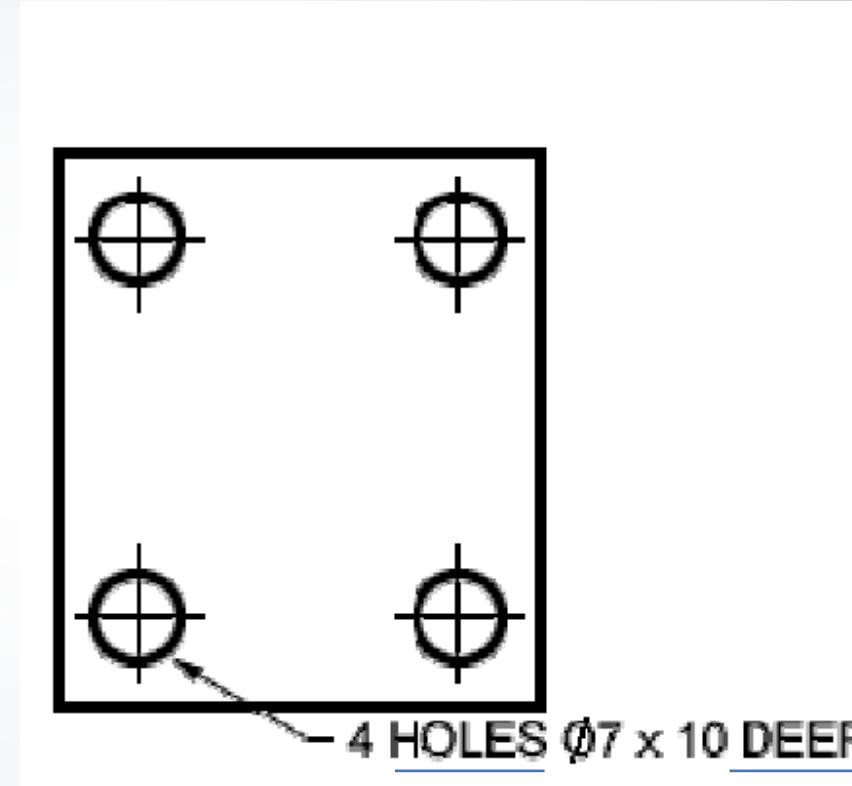


Figure 1: dimensioning types

<https://www.drawturk.com/autocad/olculendirmeler/olculendirme-genel-tanitimi>

DISPLAYING DIMENSIONS

When necessary, notes should be used for explanation and these should be written horizontally.



SYMBOLS

symbols

\emptyset
R
\square
\circ
\sim
Küre \emptyset (veya S \emptyset)
Küre R (veya S R)
AA
M
Tr
Yv
Ts
t

example

$\emptyset 30$
R 10
$\square 20$
45°
Turkish $\overline{35}$
Küre $\emptyset 20$
Küre $\emptyset 15$
AA 50
M 12
Tr 10
Yv 5
Ts 12
$t = 5$
$\triangle 1:5$
$\triangle 1:2.5$
$\triangle 1:10$

domitör

radius

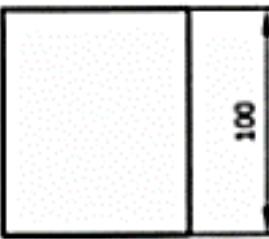
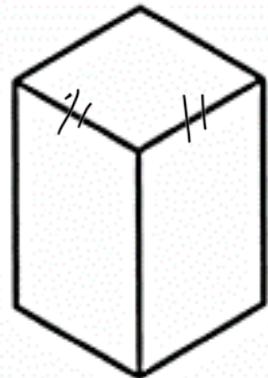
square & flat wit equal edges & surface

angle

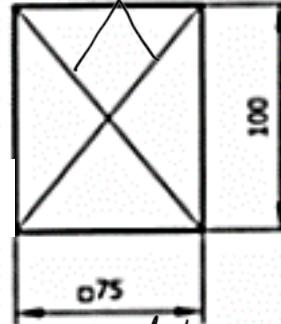
arc

spear

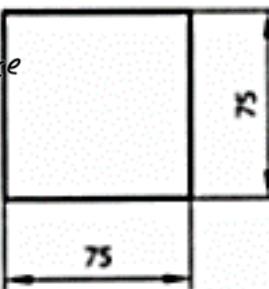
thickness



instead

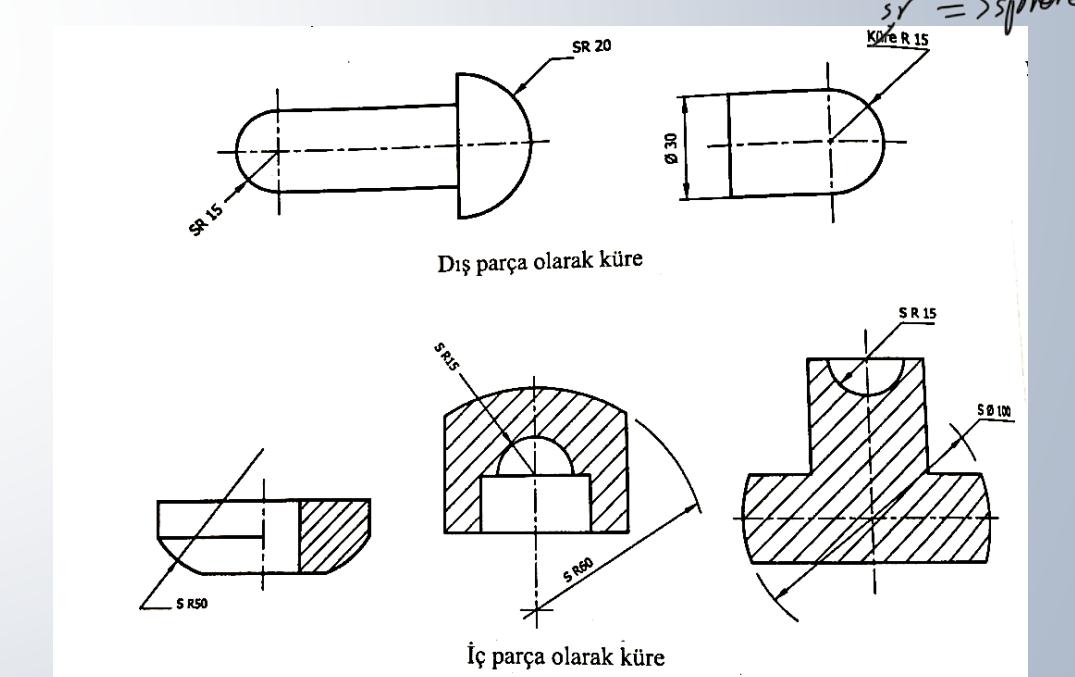
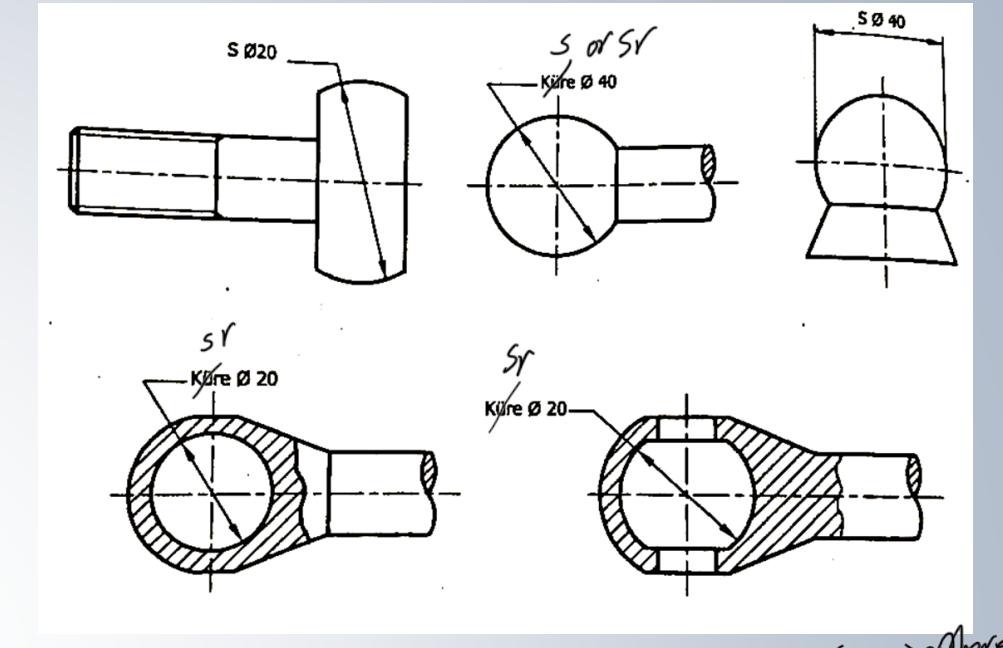
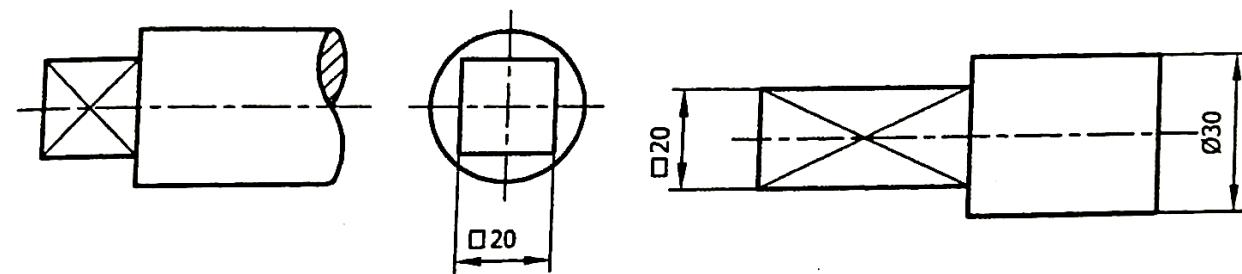
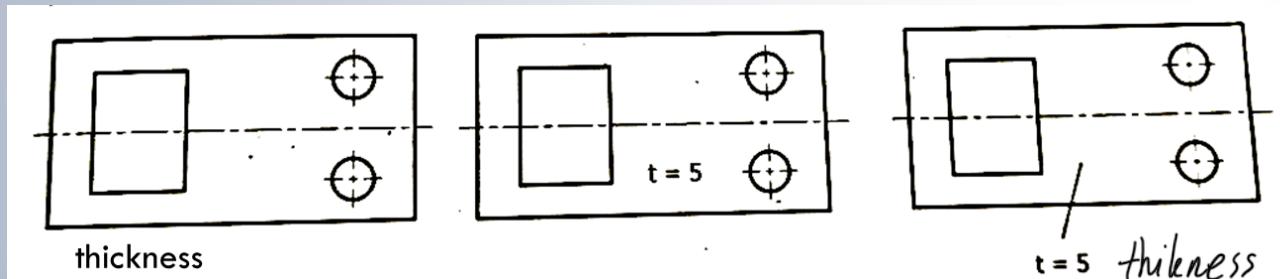
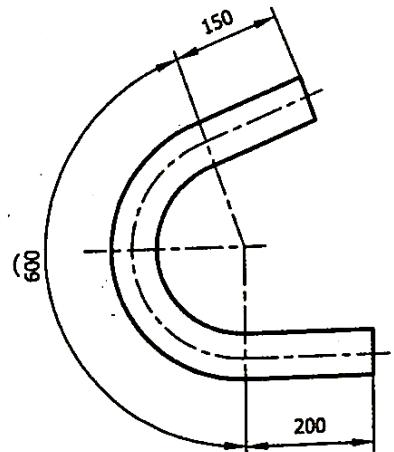
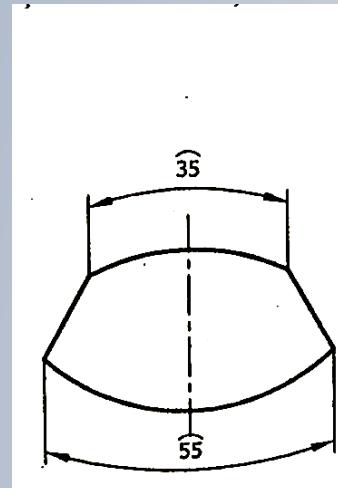


any annotational line

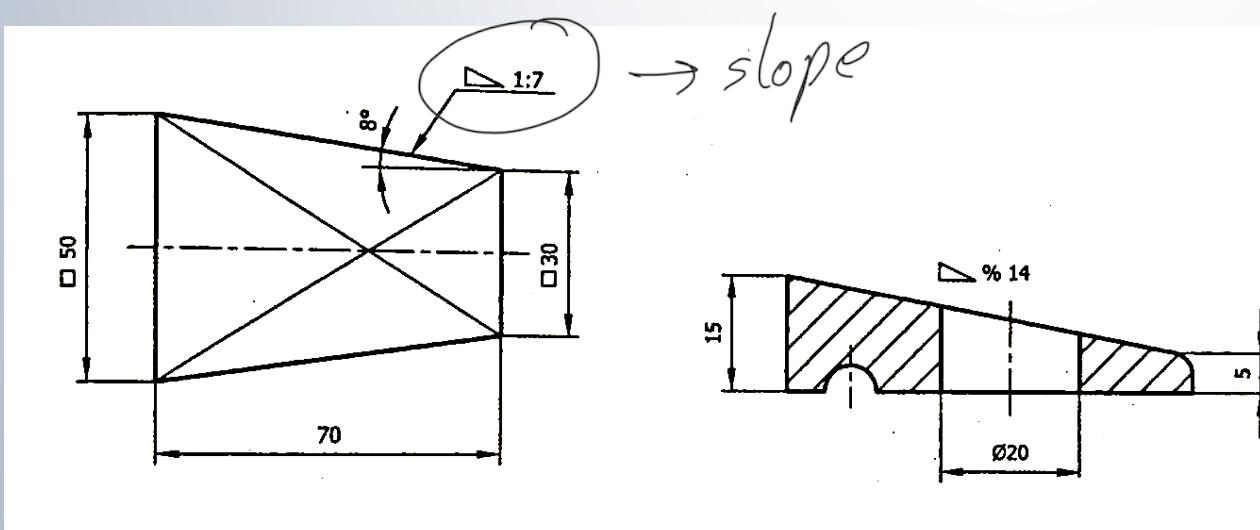
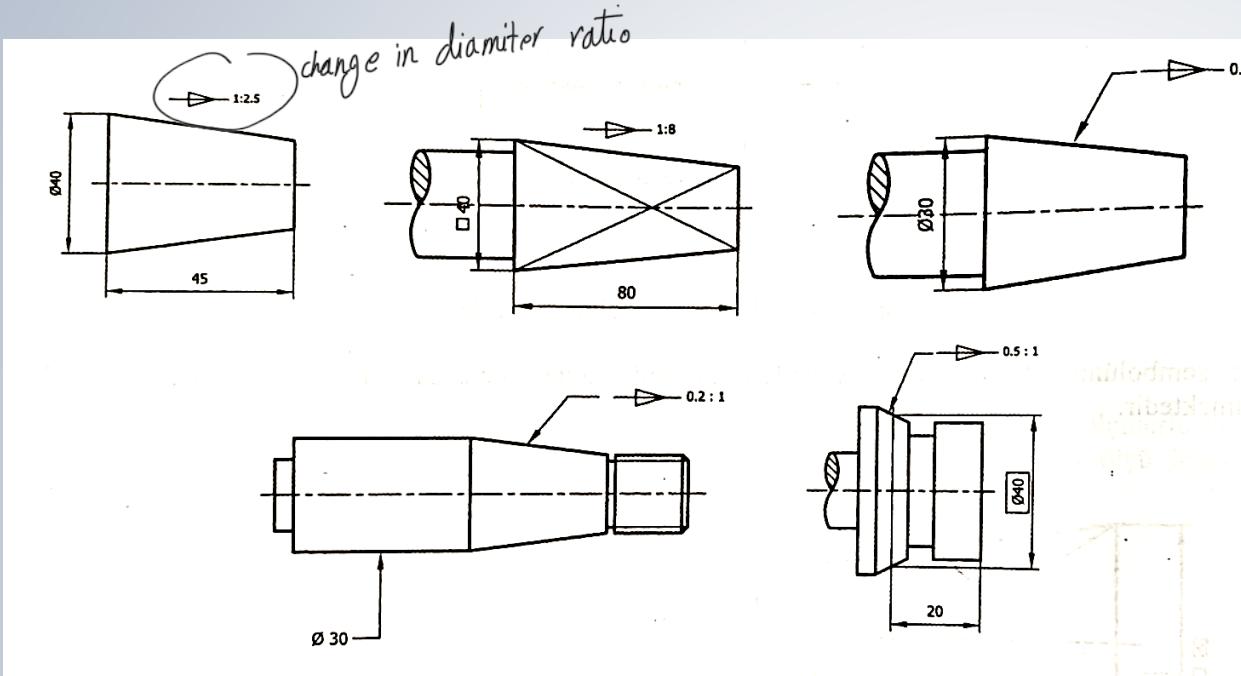


[More symbols: GD&T Symbols | GD&T Basics](#)

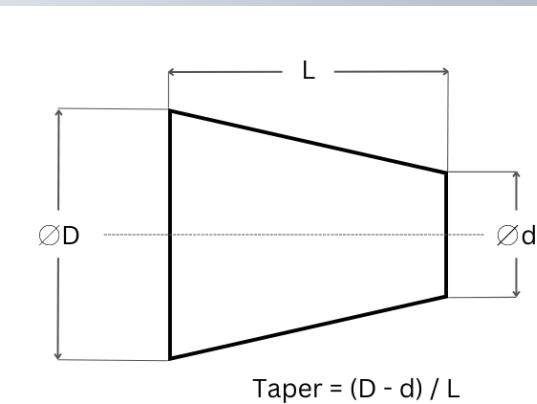
EXAMPLES



EXAMPLES



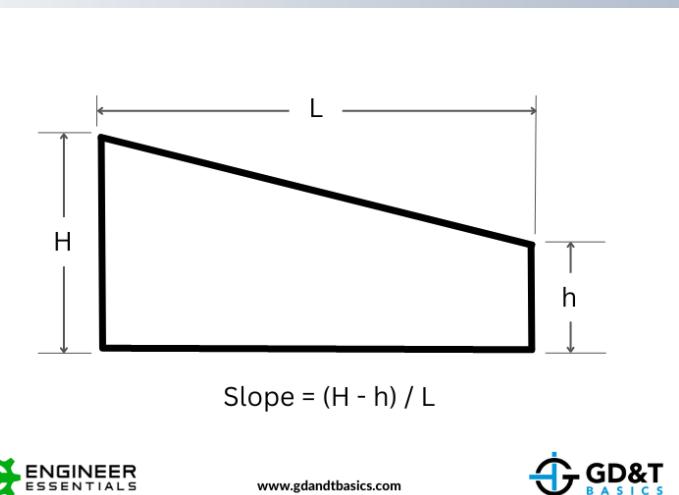
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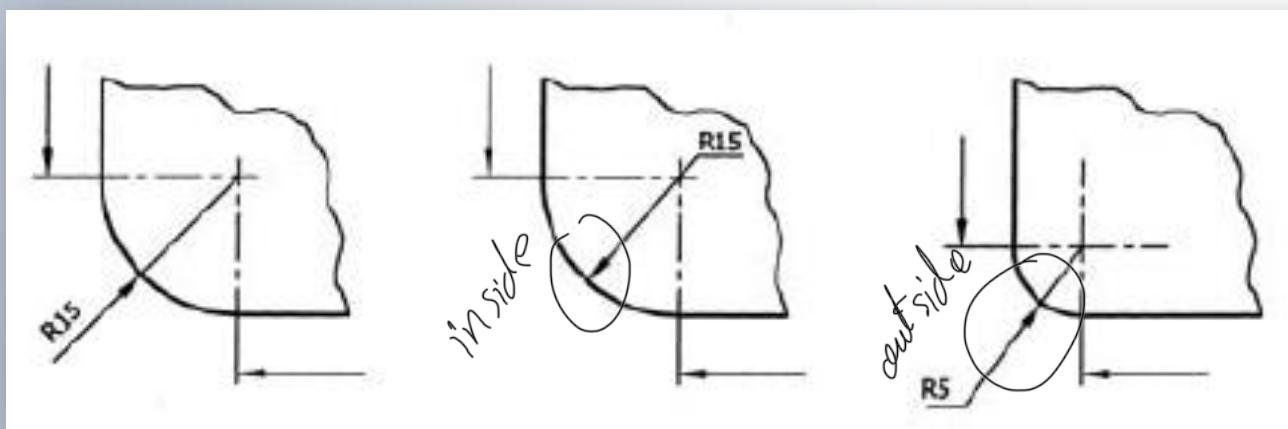
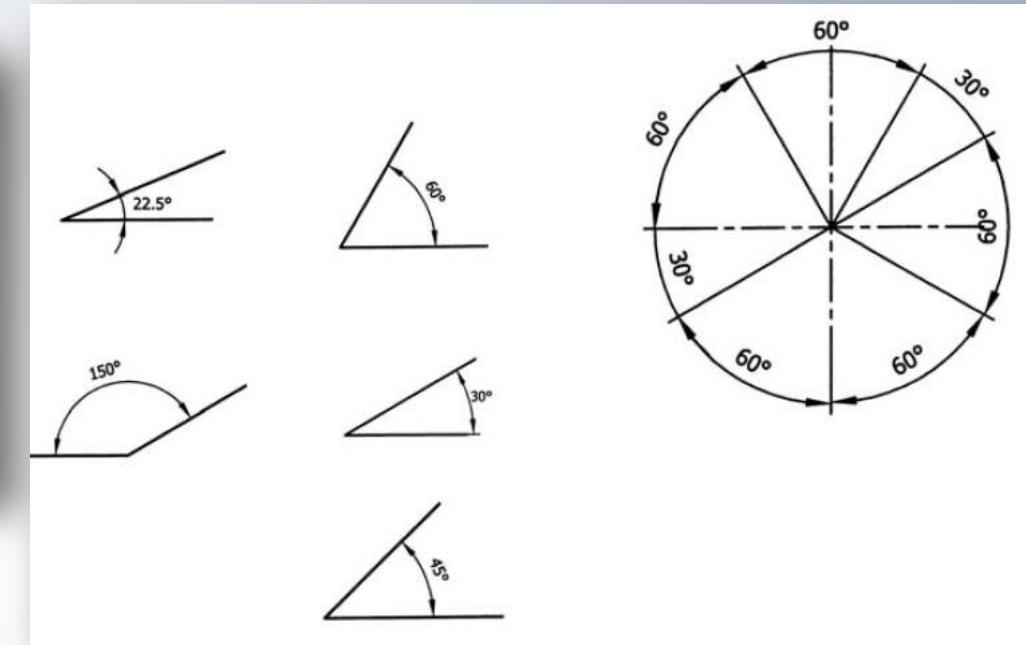
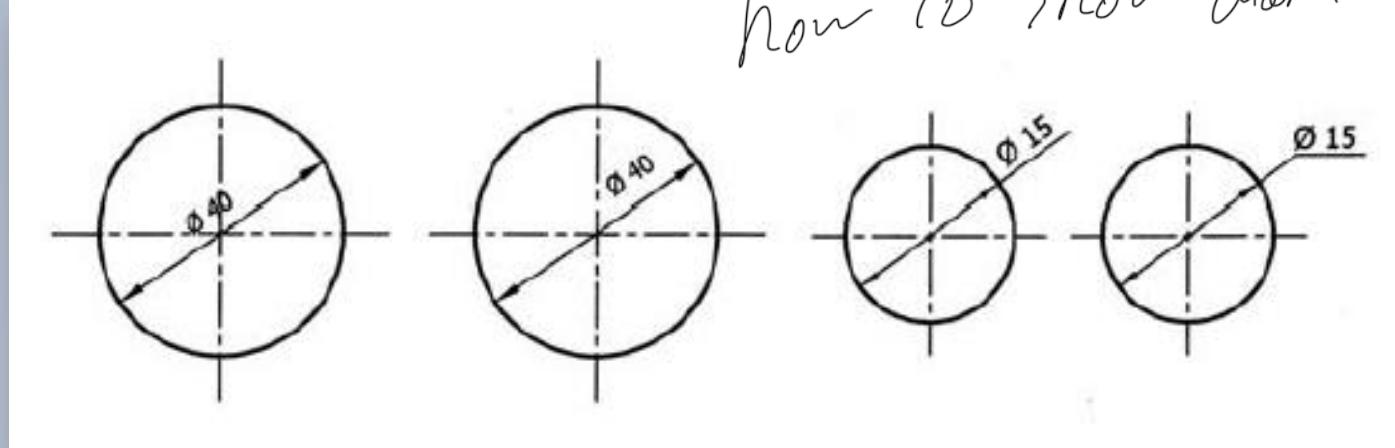


ENGINEER
ESSENTIALS

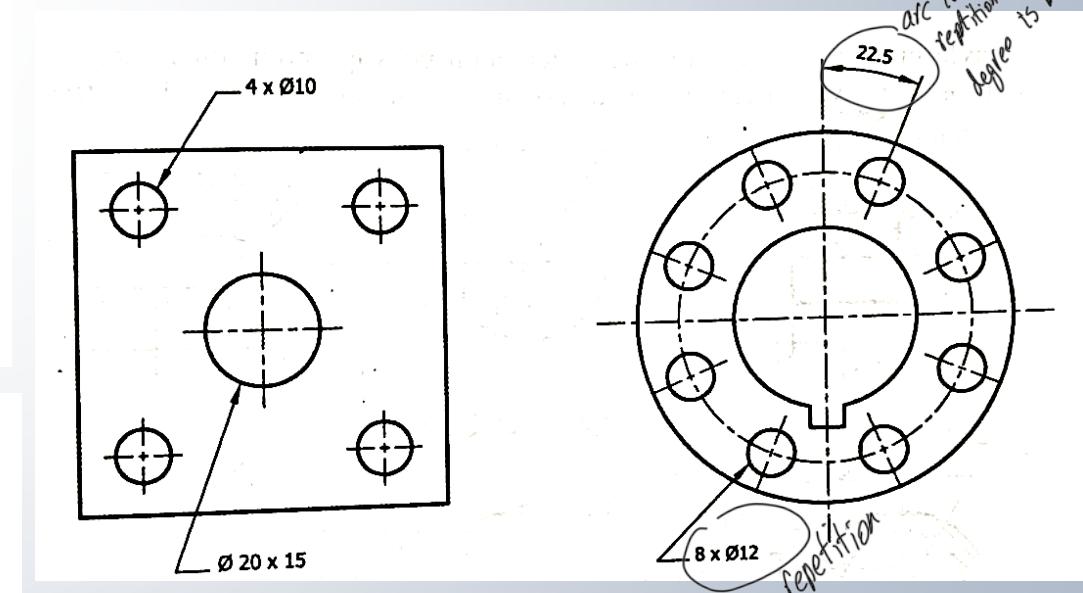
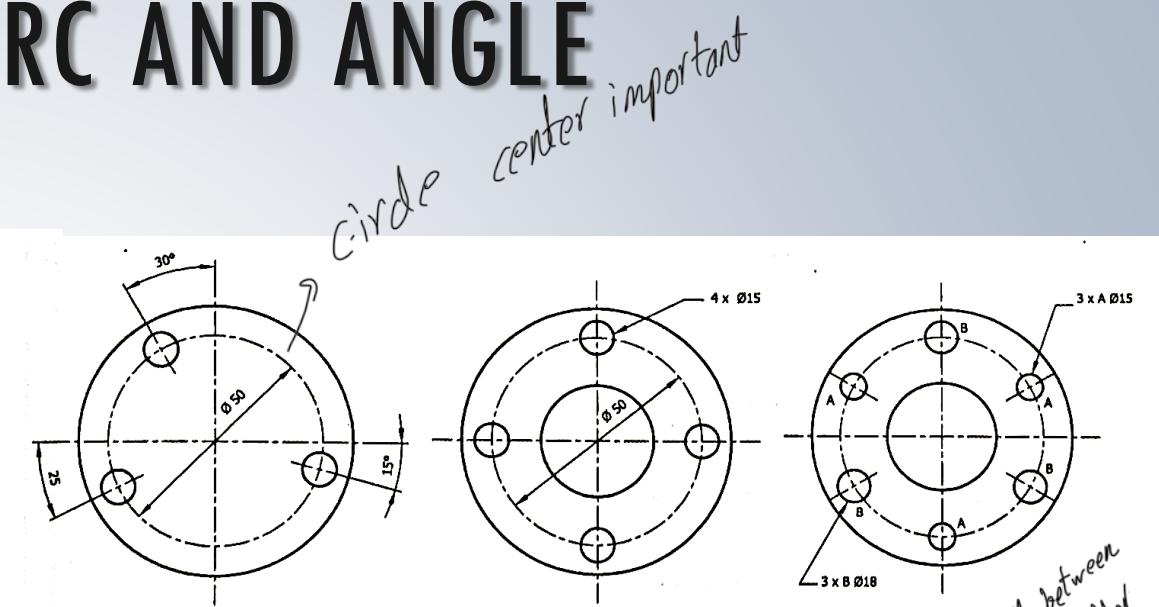
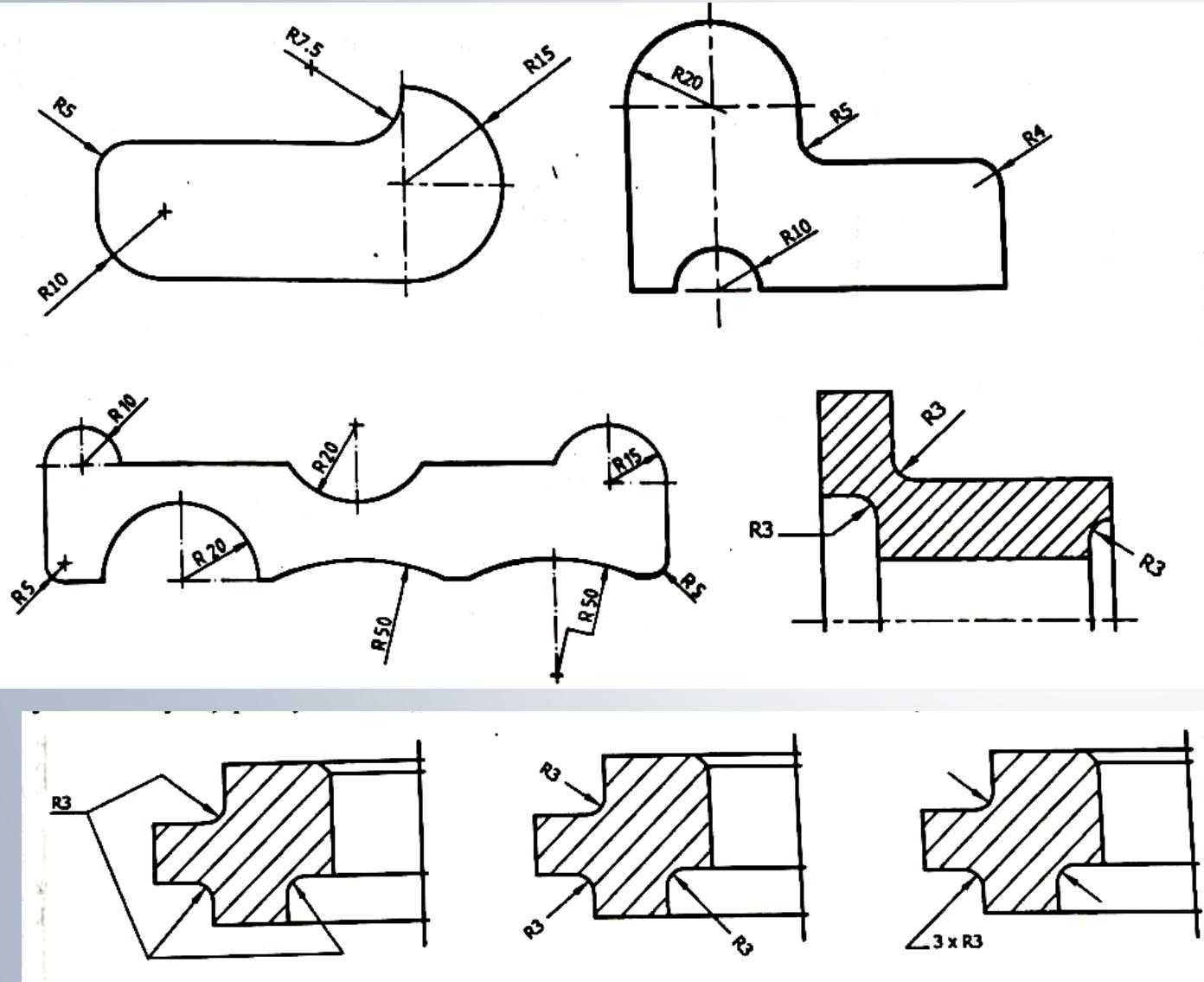
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GD&T
BASICS

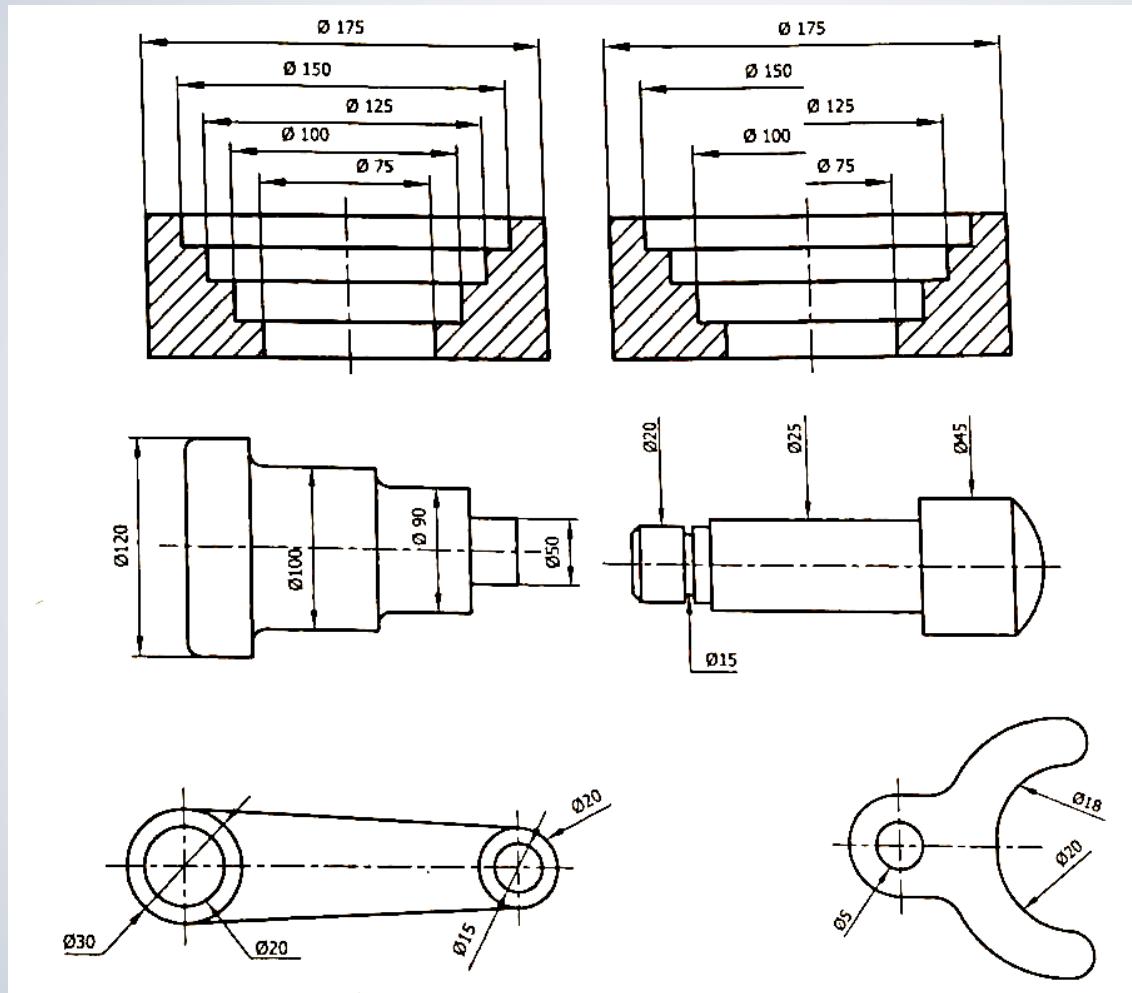
DIMENSIONING THE CIRCLE, ARC AND ANGLE



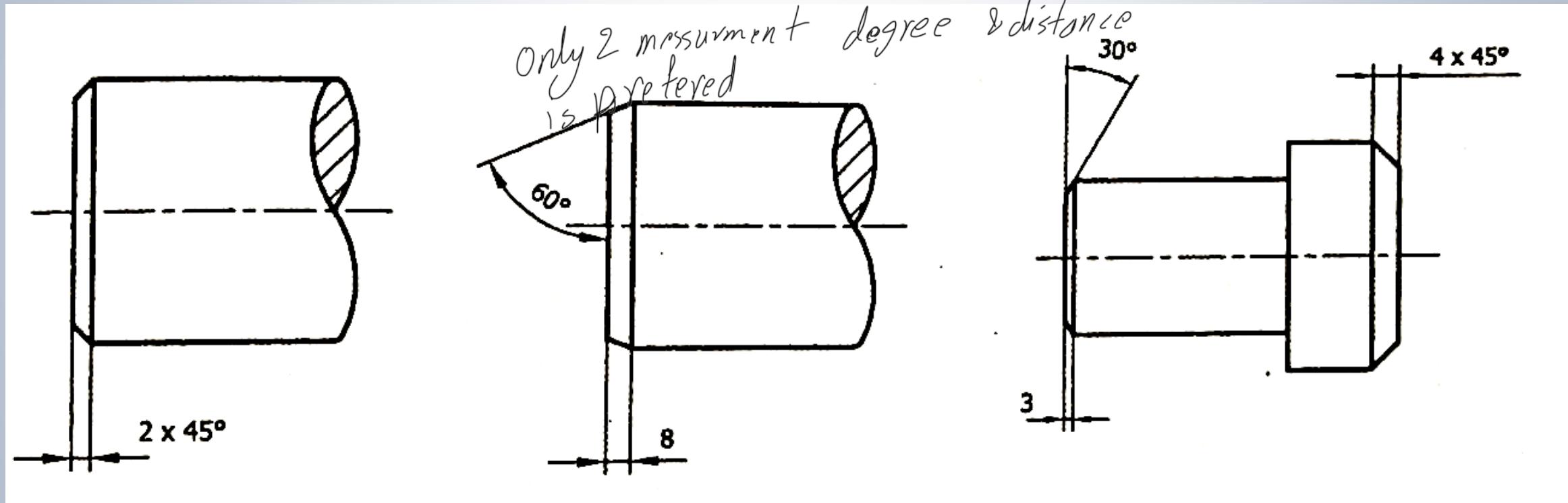
DIMENSIONING THE CIRCLE, ARC AND ANGLE



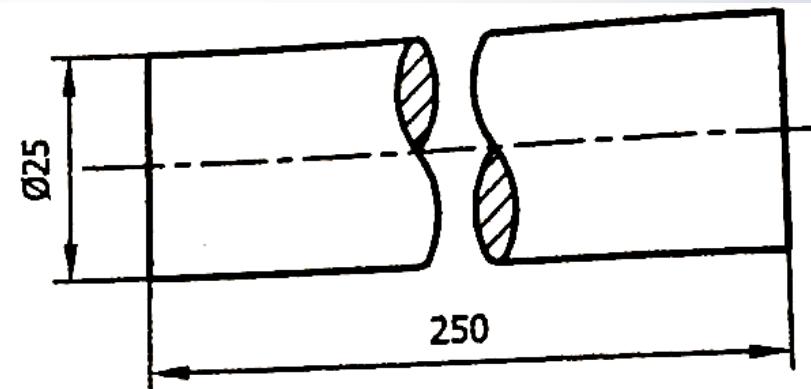
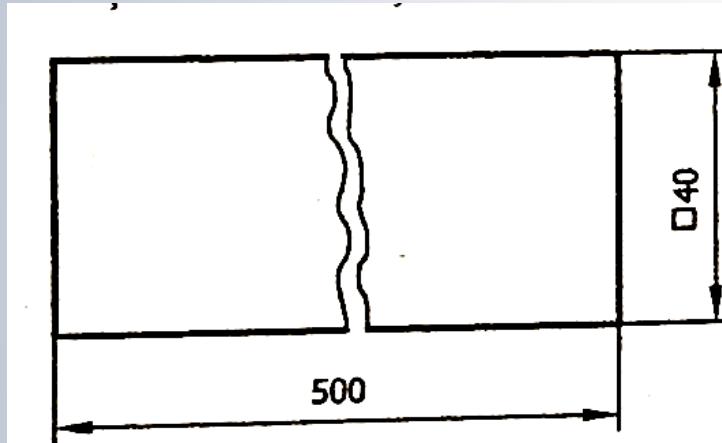
CYLINDRICAL PARTS



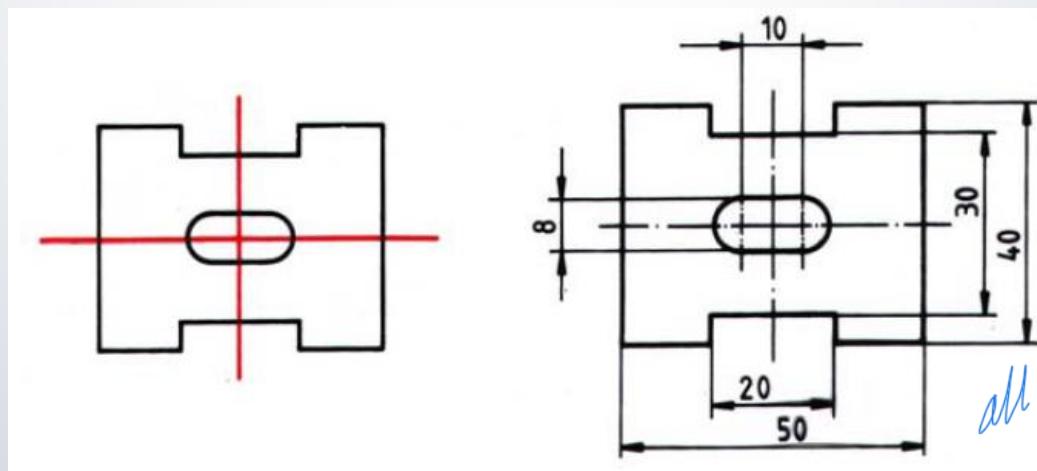
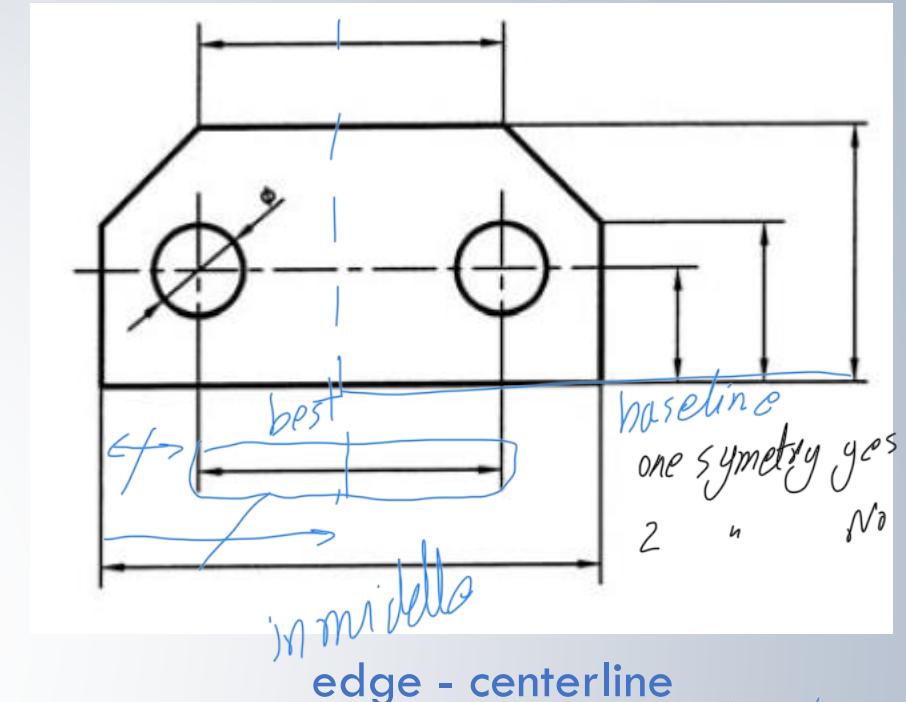
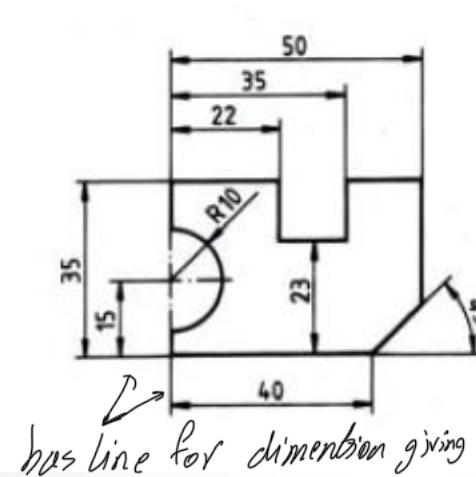
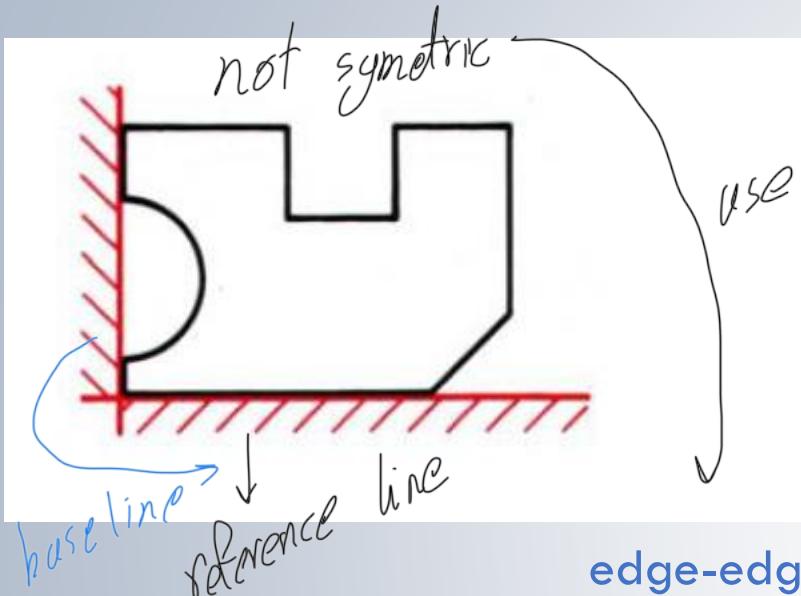
CHAMFER DIMENSIONING



DIMENSIONING LONG PARTS



DIMENSIONING METHODS

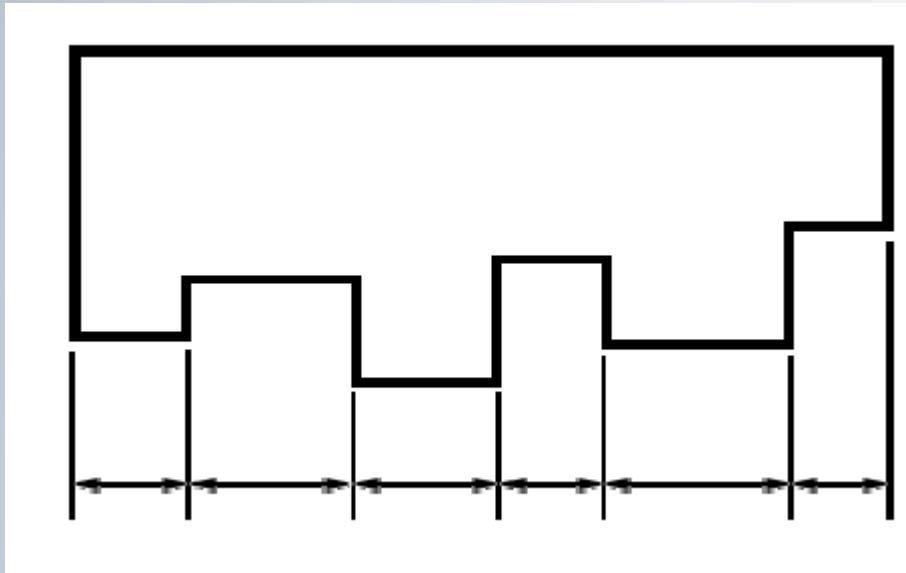


centerline - centerline

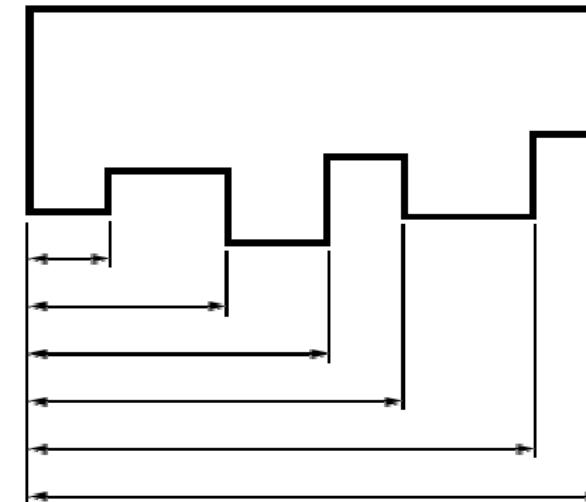
all symmetry
all centralized

DIMENSIONING METHODS

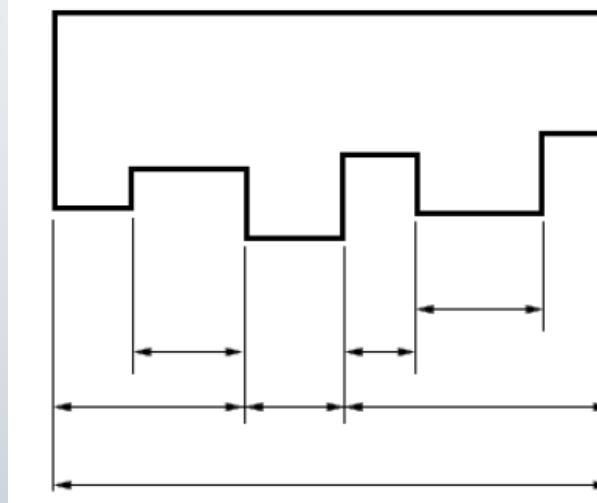
Chained



parallel

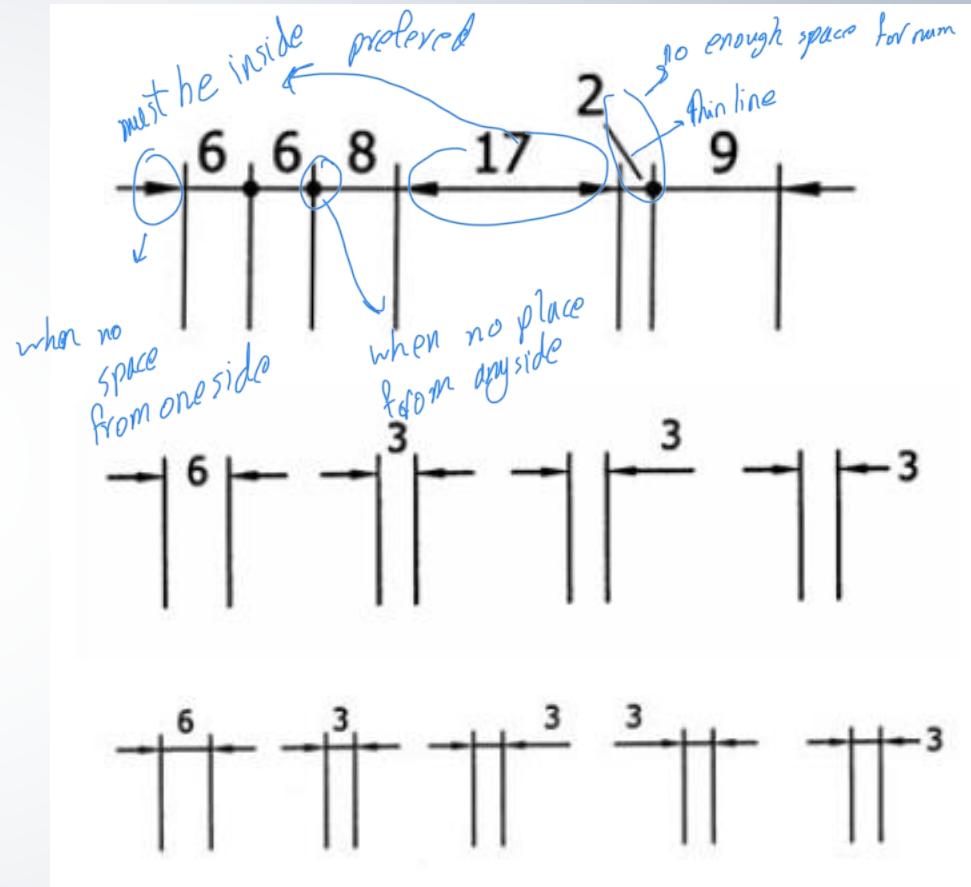


chained + parallel



DIMENSIONING OF SMALL PARTS

- The dimension value can be found inside, on the left, or on the right, or at the extension of the dimension line.
- If there is not enough space, a thin guideline can be used.
- Dimension lines may not be drawn.



DIMENSIONING RULES

2. No redundancy
can be done
Forget now

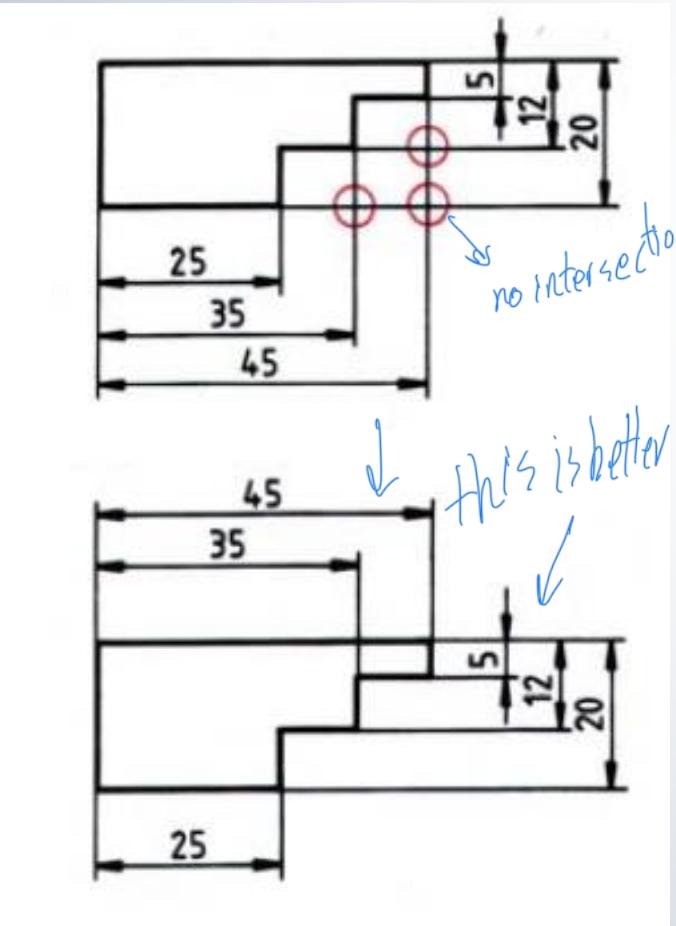
1. All necessary dimensions, ~~tolerances~~, surface finishing symbols etc. must be complete.
2. Redundant dimensions or the same dimensions more than once must not be given.
3. It should be at the most related drawing.
4. Dimensions should not be given over hidden lines (dashed).
5. If the unit of dimensions is in [mm], it should not be written on the drawing.
6. Standard sizes should be preferred.
7. Dimensions should not be given for shape features that are generated automatically during manufacturing.
8. A dimension should not need to be found by measuring on the drawing.

DWGUNIT + 3

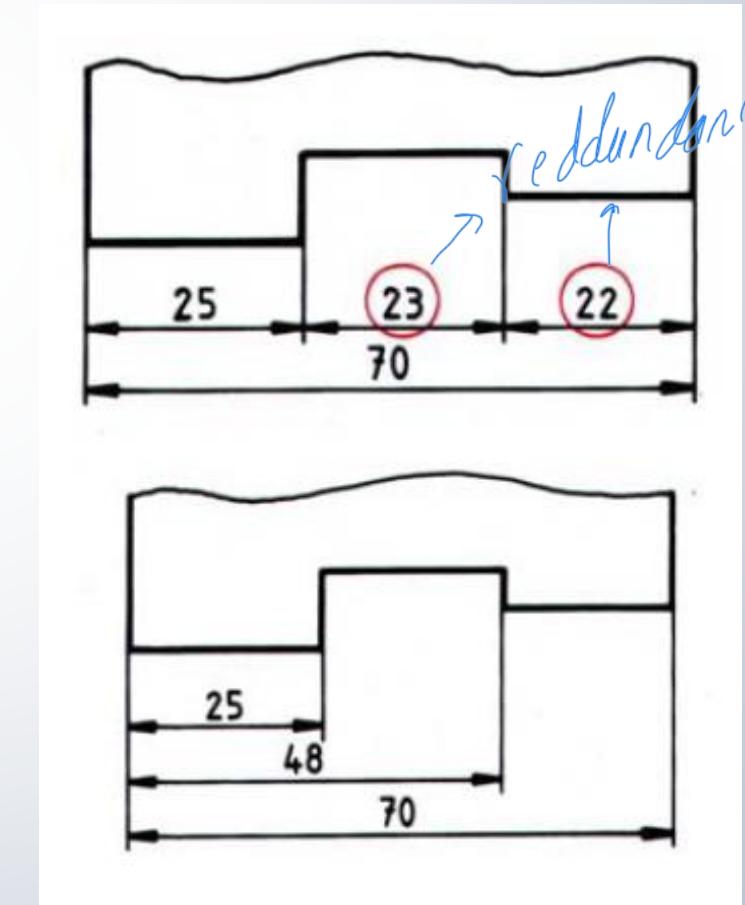


DIMENSIONING MISTAKES

Dimension lines or dimension extension lines should not cross each other.

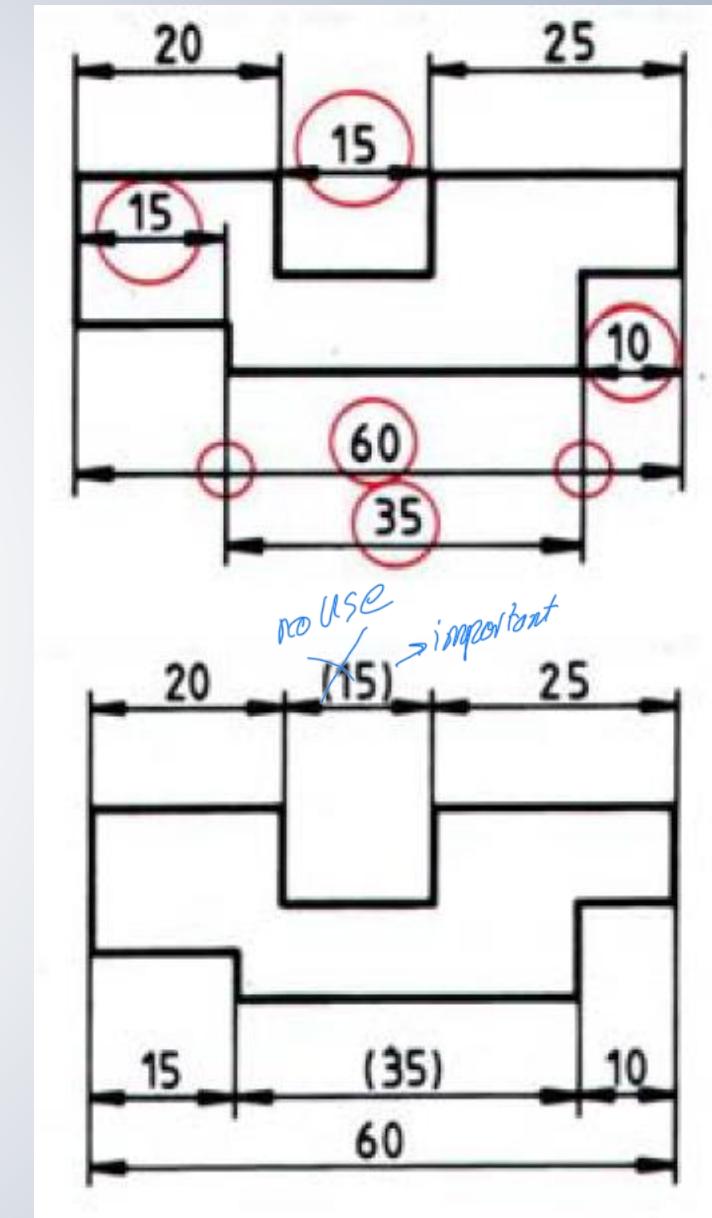
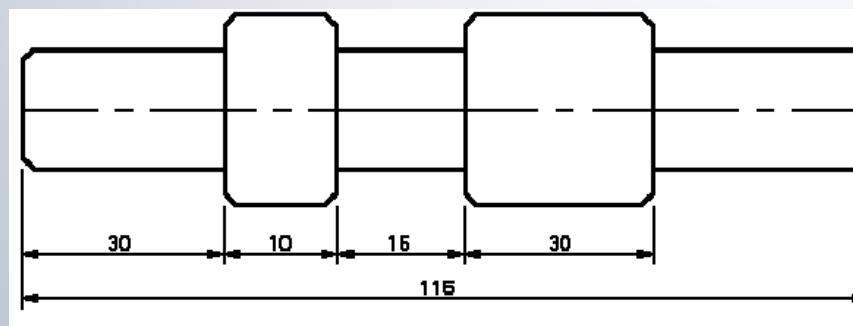


Instead of chained dimensioning parallel dimensioning should be preferred.

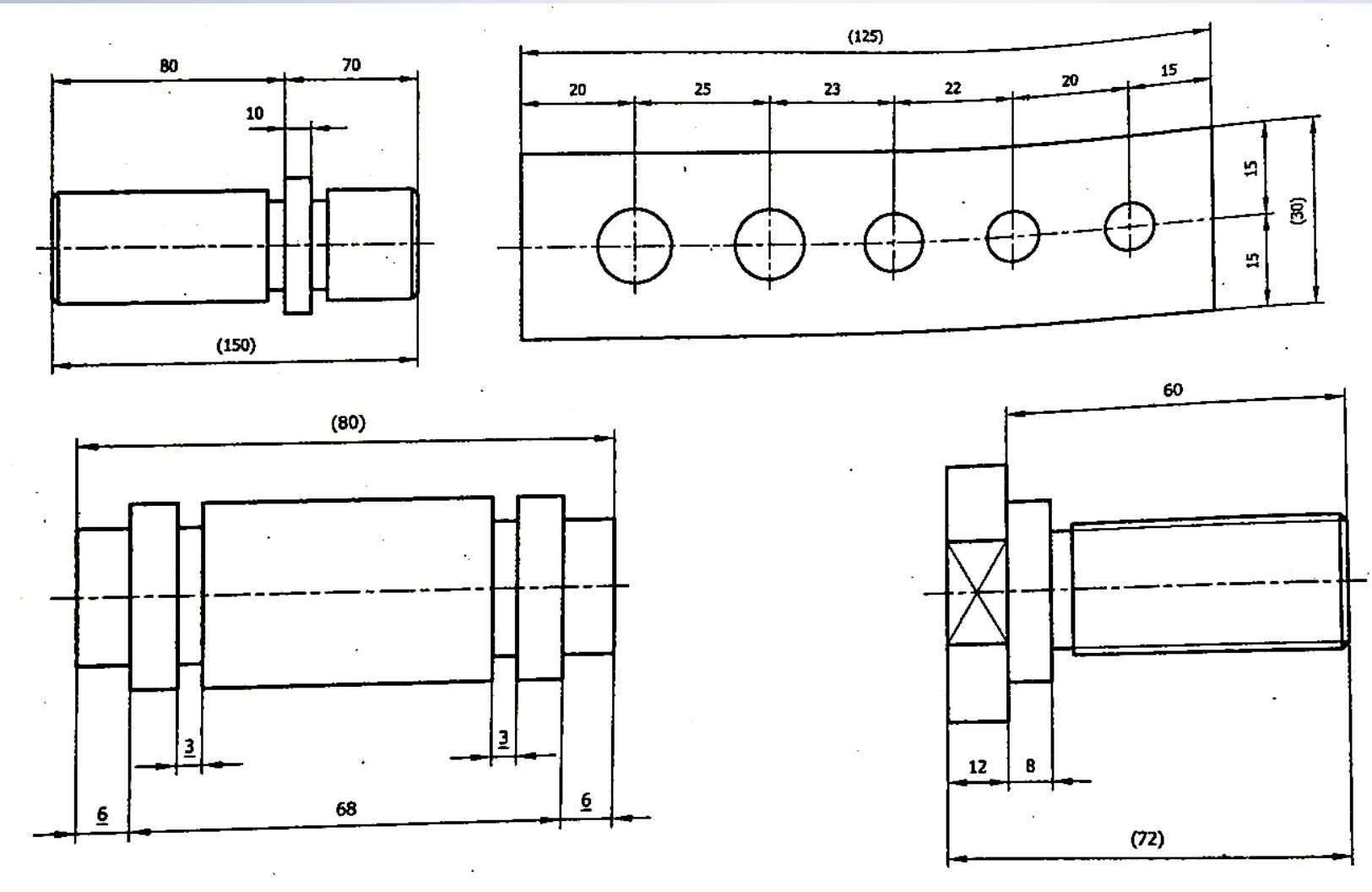


DIMENSIONING MISTAKES

- Dimensioning should not be done without giving dimension extension lines.
- Whenever possible, the dimension lines should be aligned.
- Unless necessary, dimensioning should not be made inside the part.
- Dimension lines or dimension extension lines should not cross each other.
- Secondary dimensions should be determined well and written in parentheses.



SECONDARY DIMENSIONS

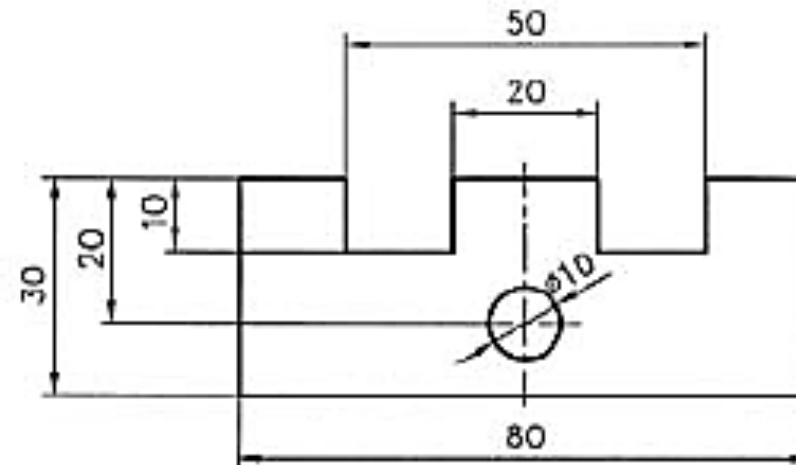
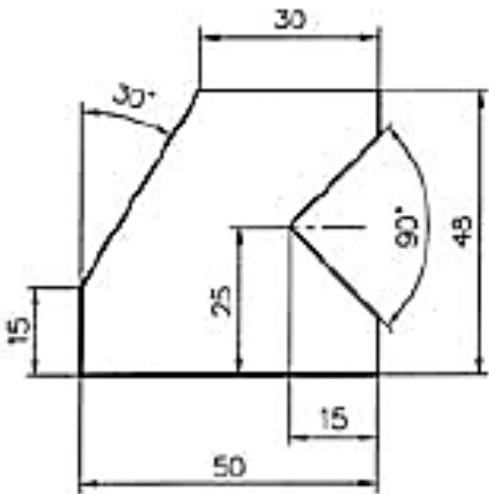
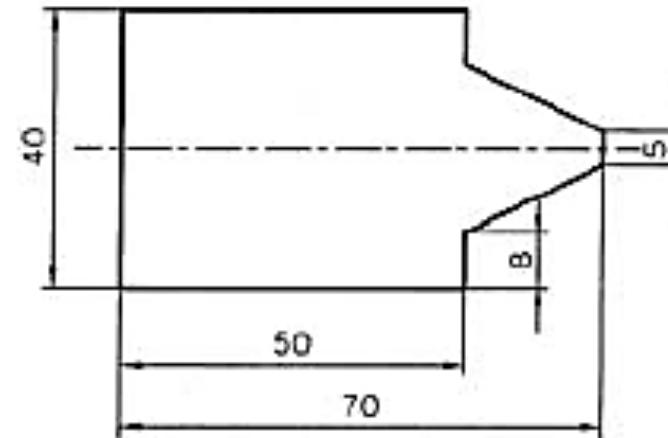
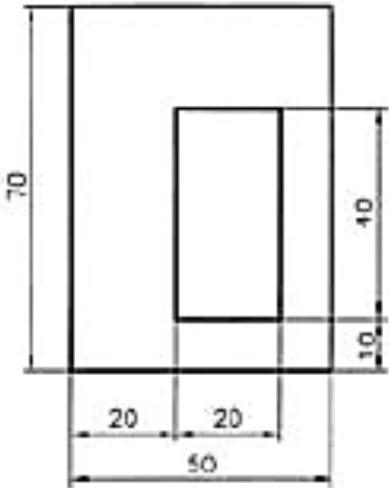


DEFINE TOLERANCE

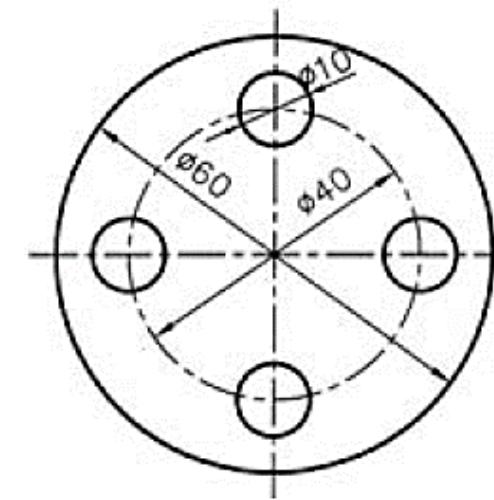
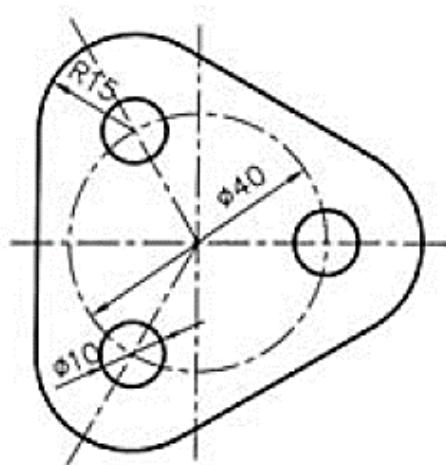
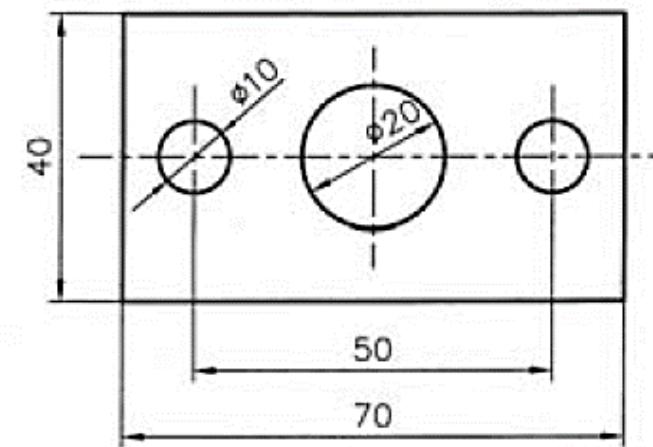
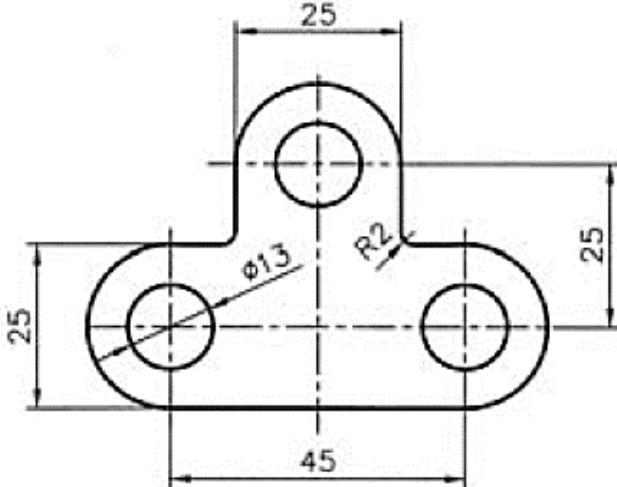
- Each dimension must have tolerance.
- Tolerances are either generally defined in the drawing and include all dimensions,
- or specific tolerance for a dimension is defined.



EXAMPLES



EXAMPLES



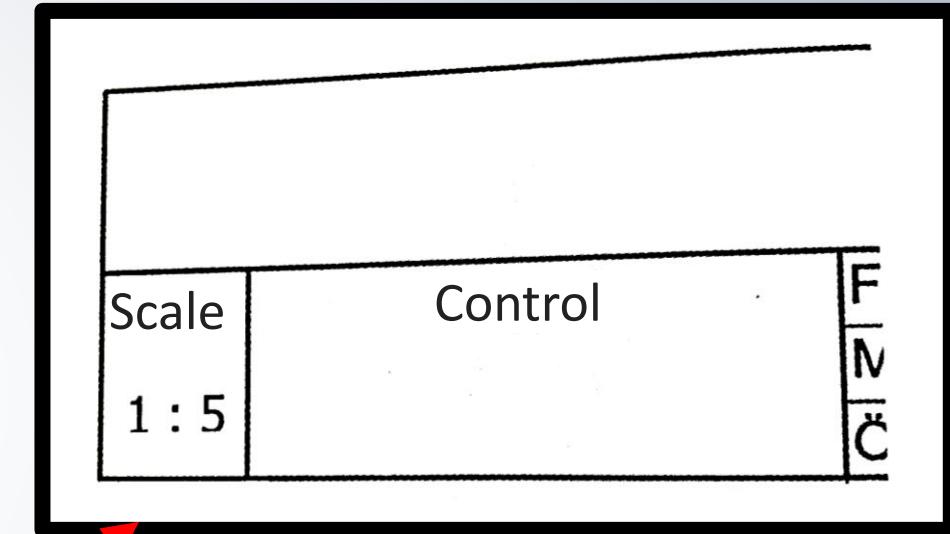
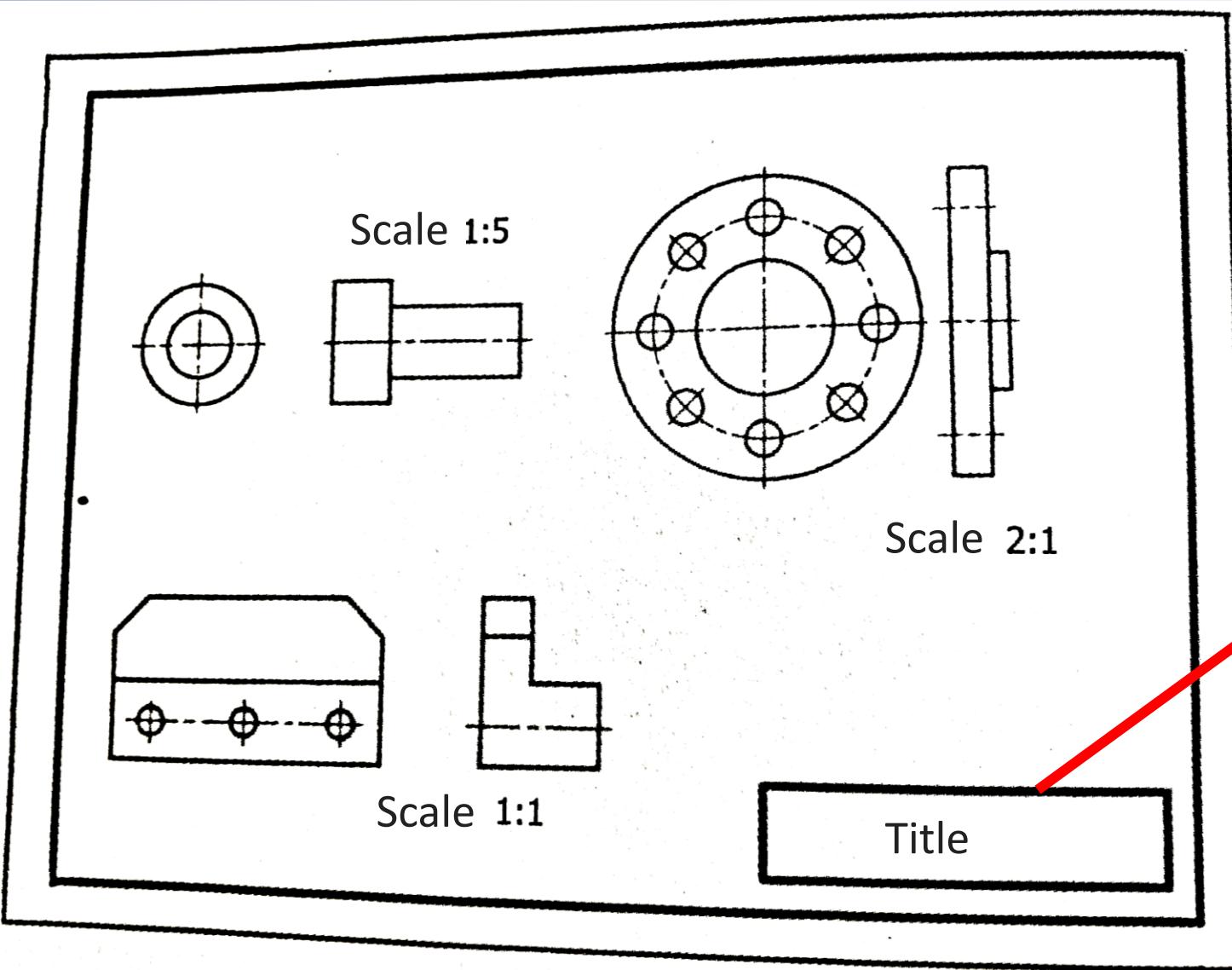
SCALES

Only these → no other scale

Standard scales used in technical drawing

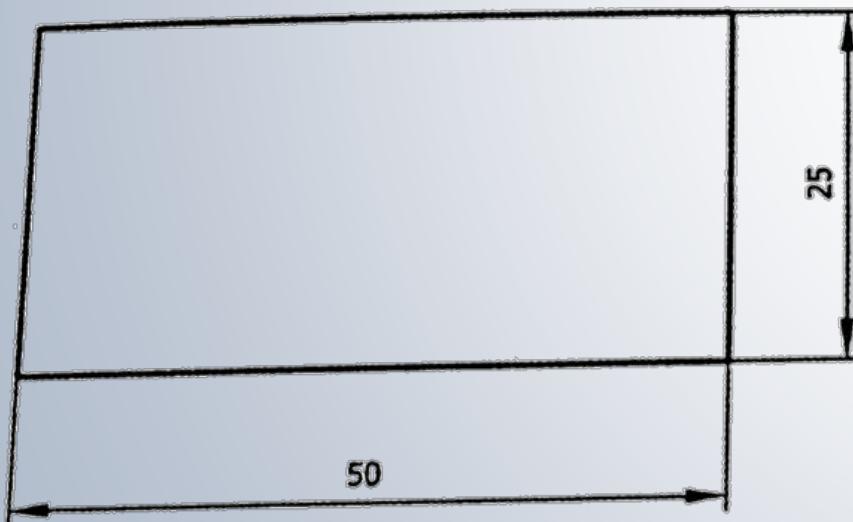
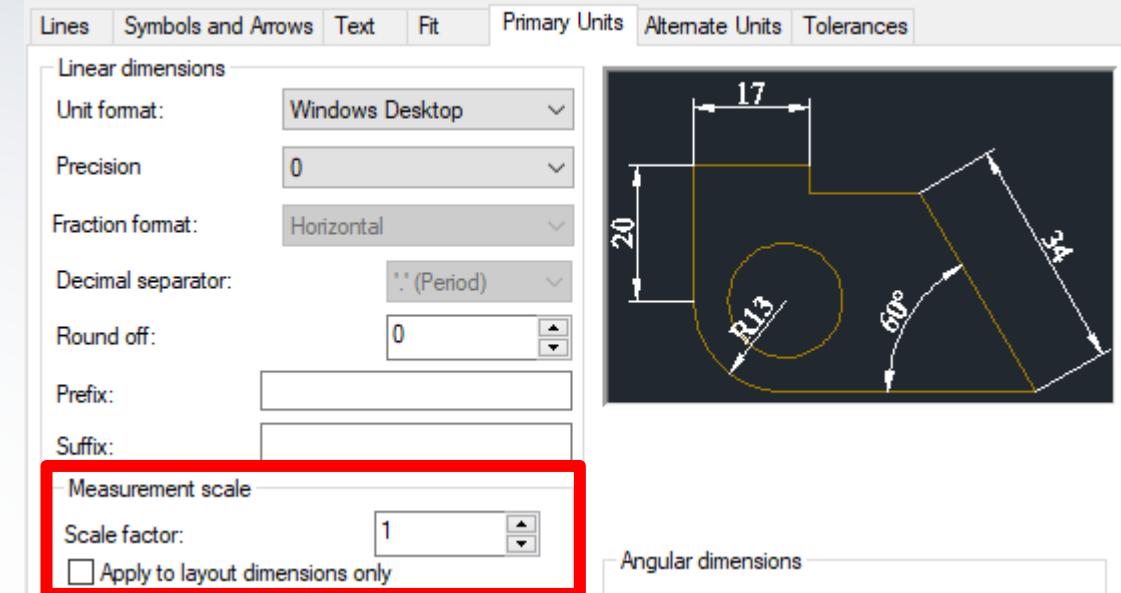
Scale class	Scale values		
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Enlargement scale	2:1	5:1	10:1
	20:1	50:1	
Reduction scale	1:2	1:5	1:10
	1:20	1:50	1:100
	1:200	1:500	1:1000
	1:2000	1:5000	1:10000

SCALING

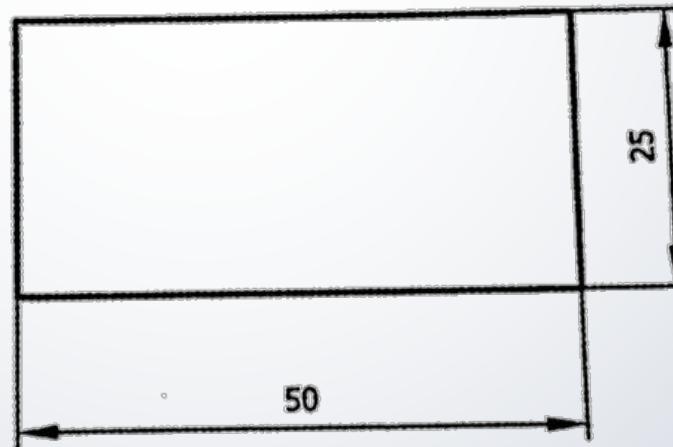


DIMENSIONING

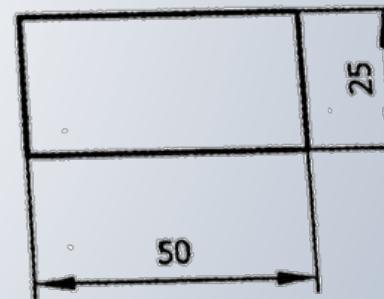
Annotate – manage dimension styles - modify



Enlarged



Real



Reduced

