

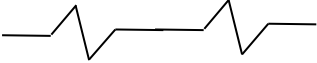




Line Types

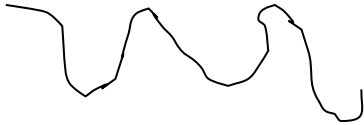
	Continuous thick	Used for visible outlines and edges.
	Continuous thin	Used for projection, dimensioning, leader lines, hatching and short centre lines.
	Continuous thin straight with zigzags	Used for limits of partial or interrupted views and sections if the limit is not an axis.
	Dashed thin line.	Used for hidden outlines and edges.
	Chain thin.	Used for centre lines, lines of symmetry.

Line Types



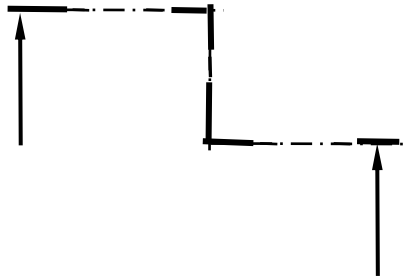
Chain thin double dash/Fold line

Used for ghost outlines and fold/bend lines.



Continuous thin irregular

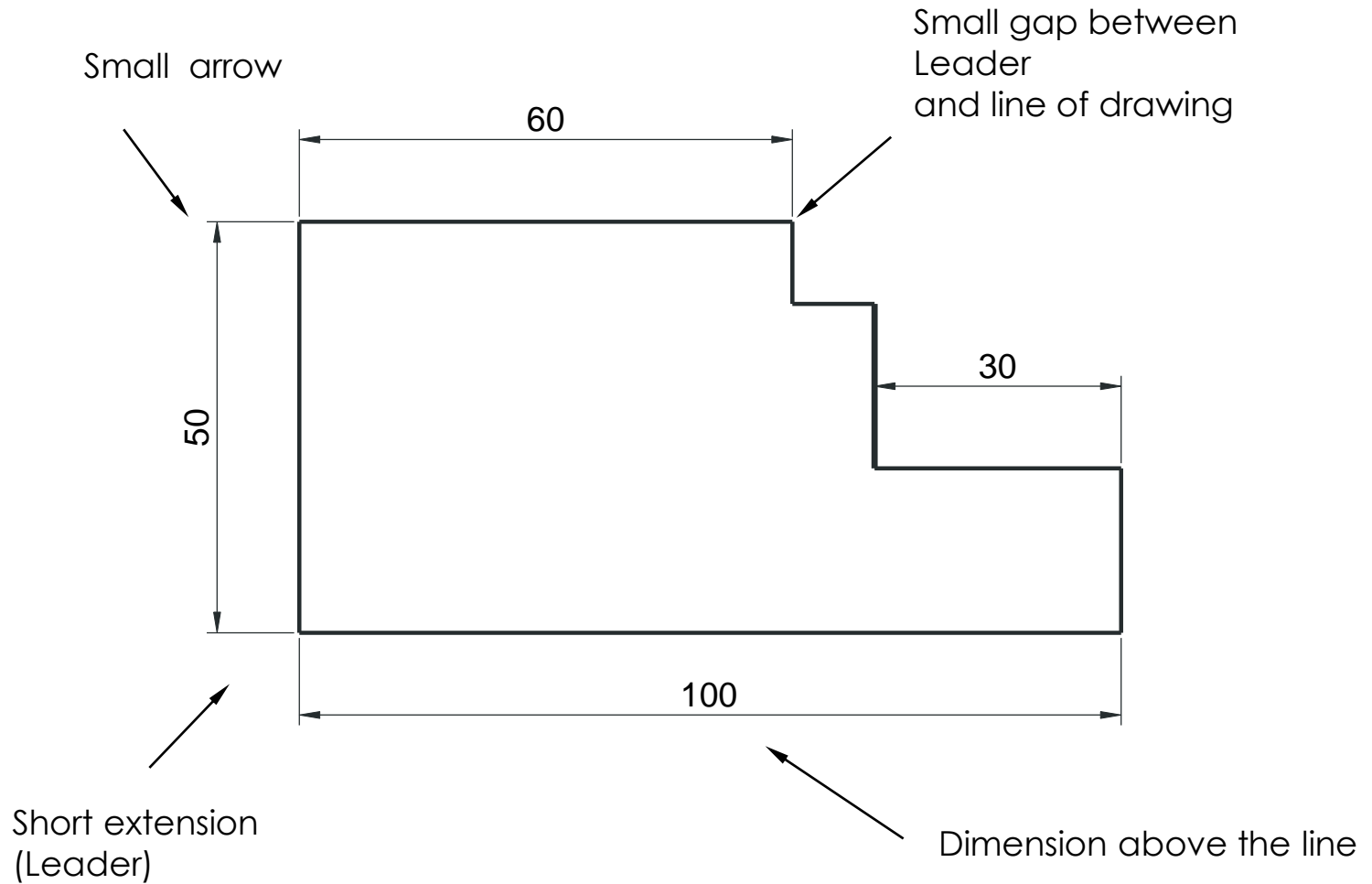
Used as the limit to an interrupted view when an axis is not present.



Chain thin thick at both ends

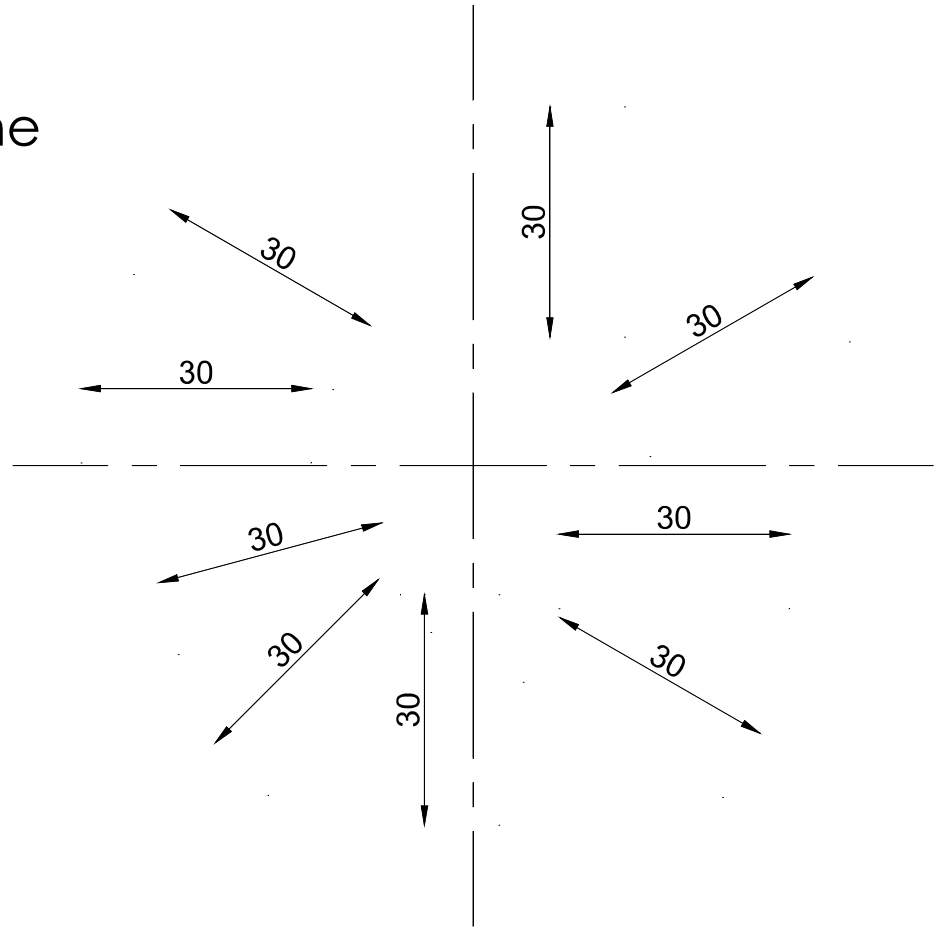
Used on Cutting planes.

Dimensioning



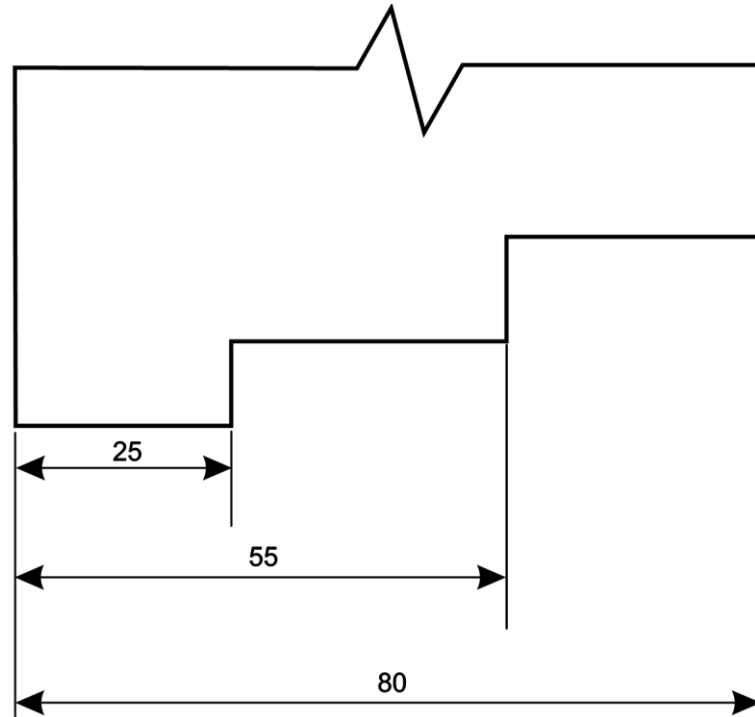
Dimensioning

Note the position of the dimensions on each of the lines



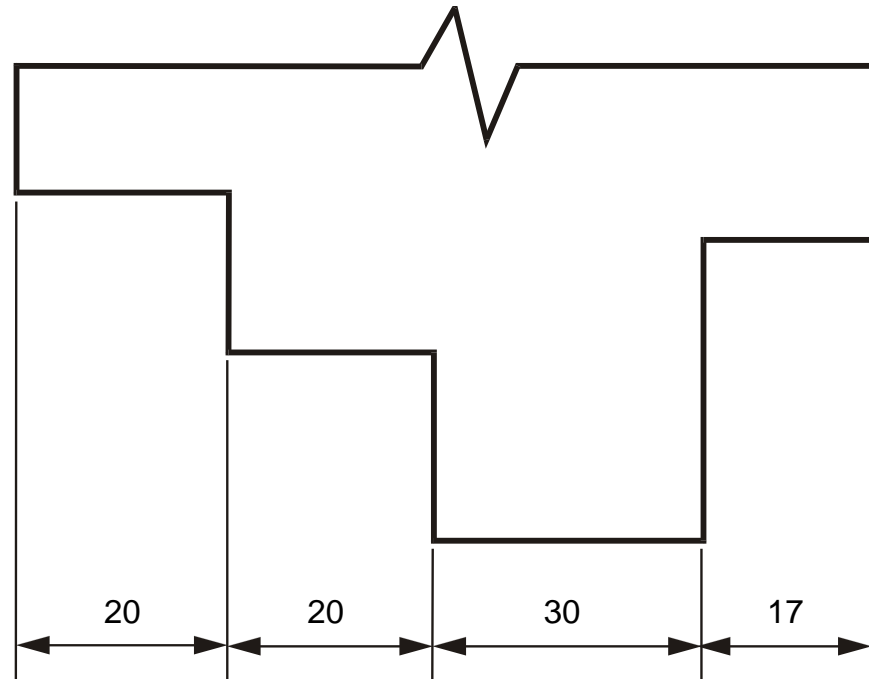
Parallel Dimensioning

- Parallel dimensioning shows dimensions taken from a common datum.
- Less likely to accumulate errors during manufacture
- Takes up a lot of space on a page



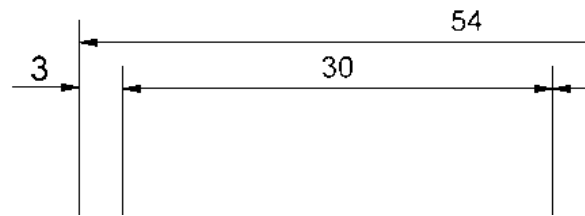
Chain Dimensioning

- Chain dimensioning measures one size after the other in line.
- This takes us less space than parallel dimensioning
- This method can lead to an accumulation of error during manufacture.

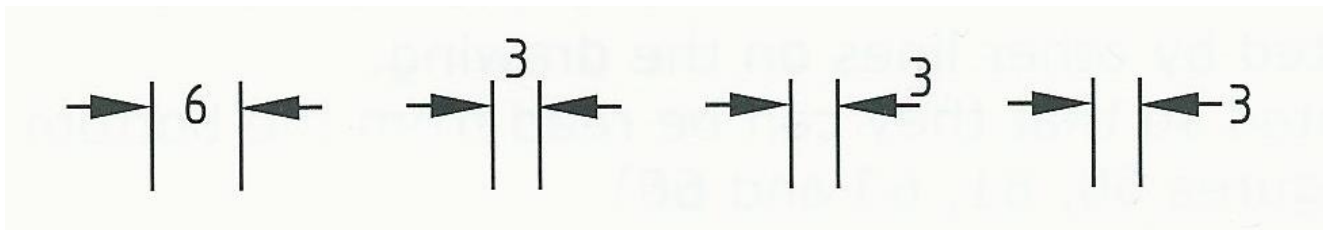


Dimensioning Small Features

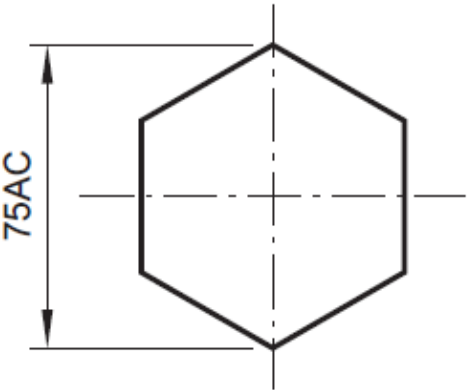
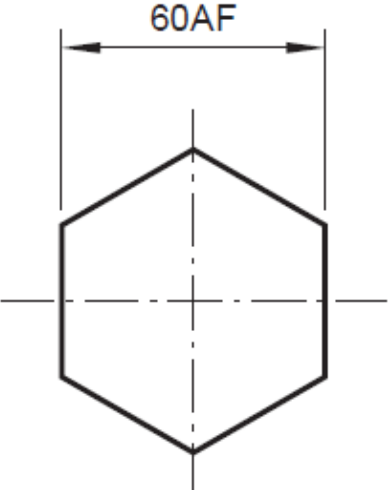
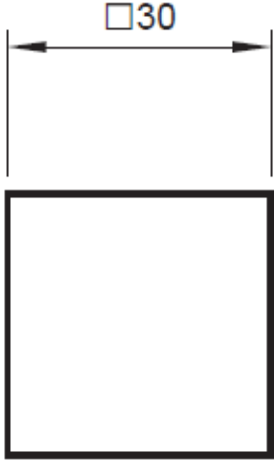
- Where there is a small feature amongst larger features of an object, the dimension must be applied as is shown below.



- Depending on the position of other dimensions, it is also possible to dimension small features using the methods shown.

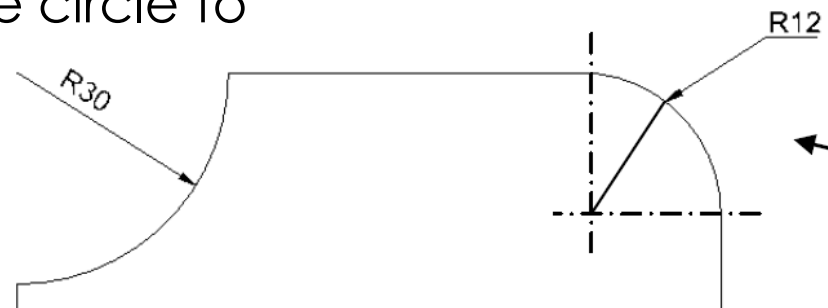
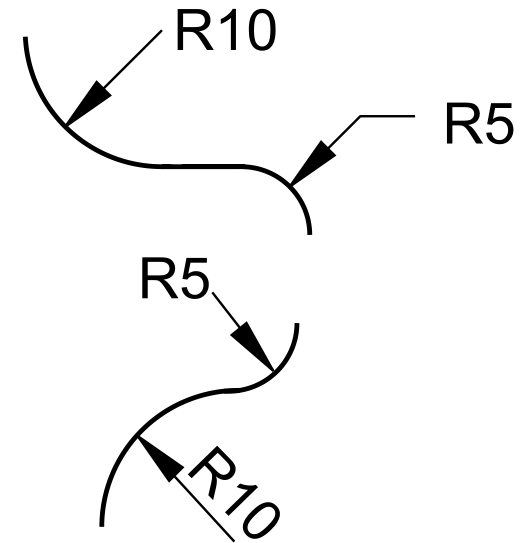


Dimensioning Shapes

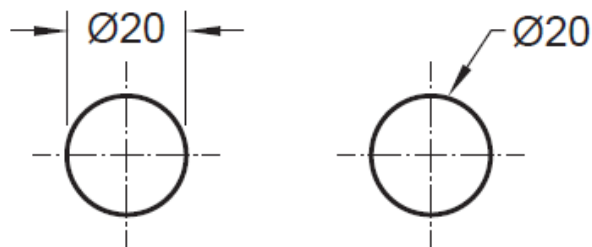
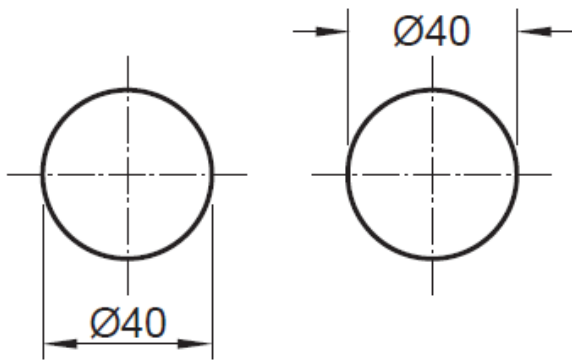
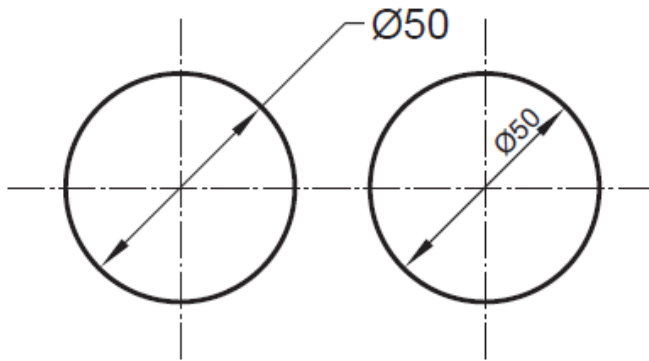
Across corners	Across flats	Square
		

Dimensioning Radii

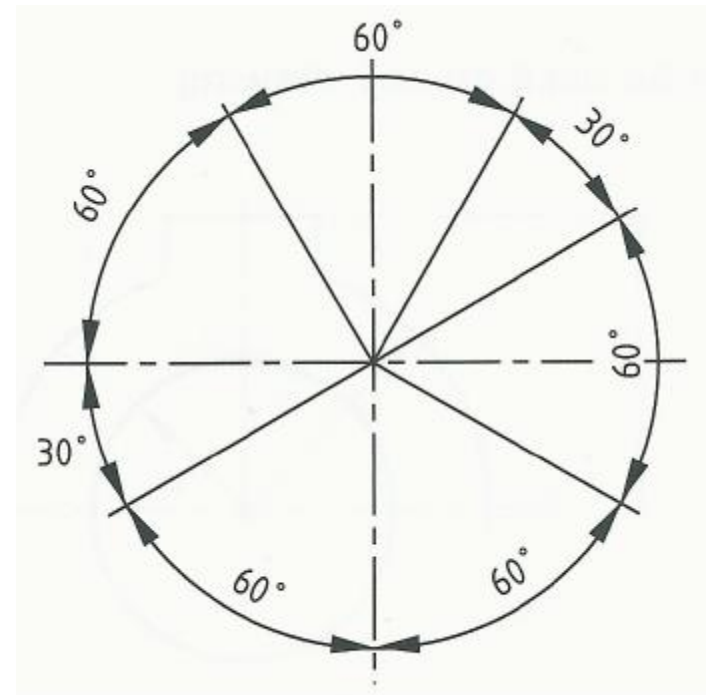
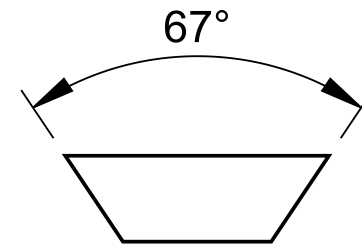
1. Radii should be dimensioned by a line that passes through or is in line with the centre of an arc.
2. The dimension line should only have one arrowhead, which should touch the arc.
3. Radii of arcs that require their centre to be shown should be dimensioned with a leader line and extension that connects the centre of the circle to the arrowhead.
4. R is placed in front of the dimensions



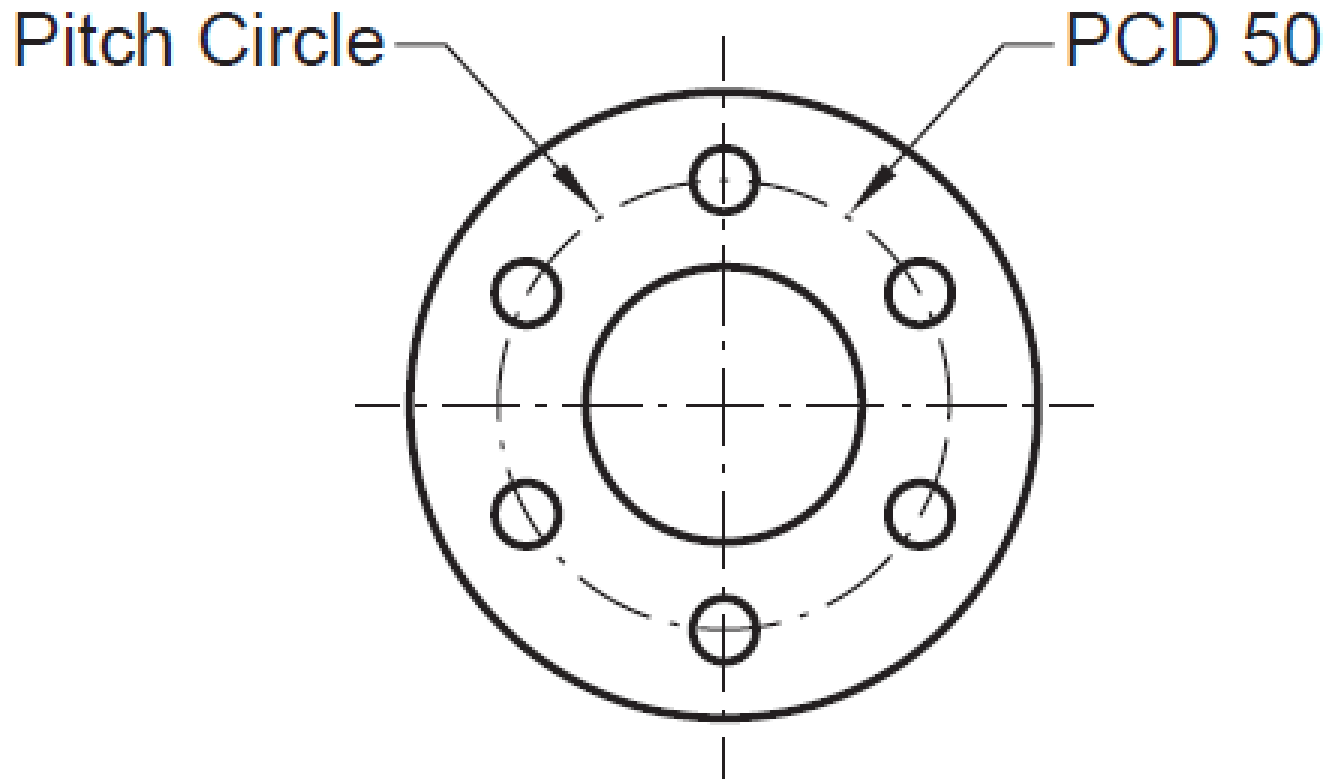
Dimensioning Circles + Angles



Angular Dimensions



Pitch Circle Diameter (PCD)

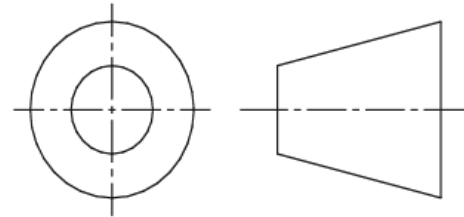


Title Blocks

Should include:

- Drawing number
- Name
- Title of Drawing
- Scale
- Date
- Tolerance
- Projection Symbol

3rd Angle Projection Symbol

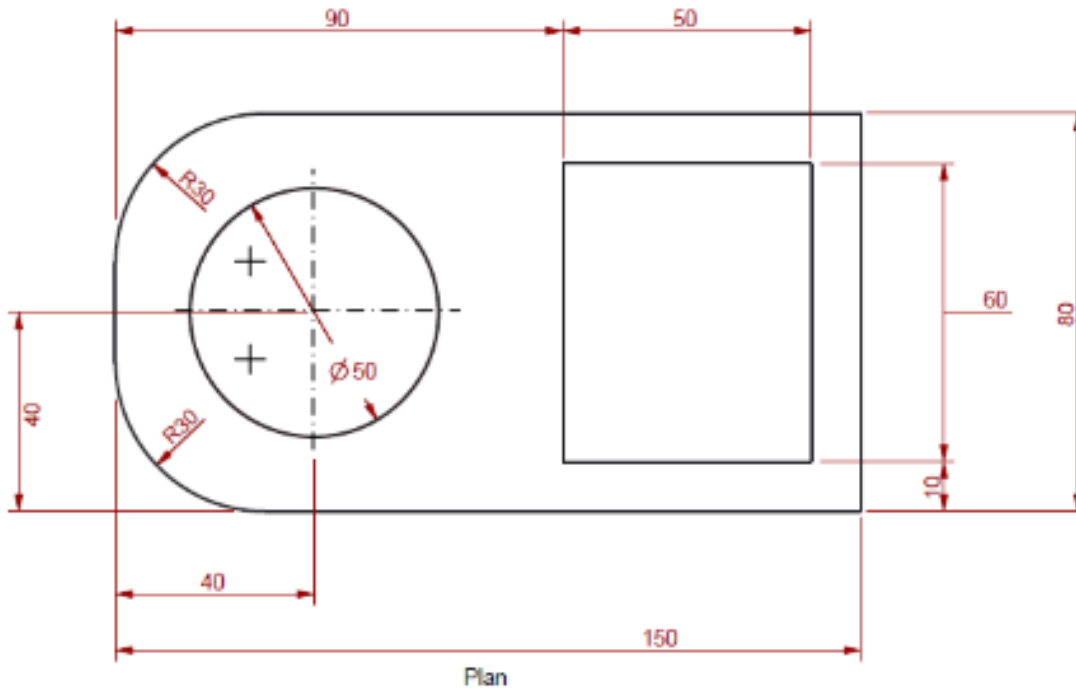


This informs the reader that the drawing has been carried out in 3rd angle projection.

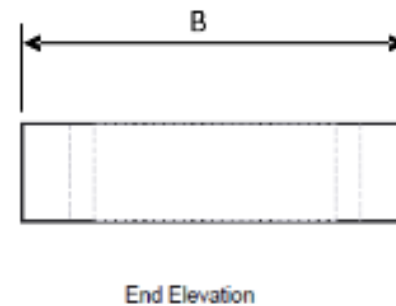
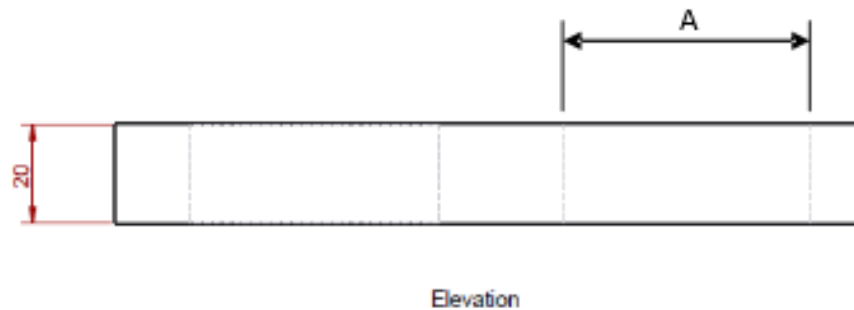
Dimensioning

1. Projection lines connect to dimension lines.
2. Dimensions are kept outside the drawing as much as possible to improve clarity.
3. Crossing of dimension lines should be avoided.
4. A 2mm gap should be kept between the projection line and part being dimensioned.
5. Projection lines are drawn at right angles to the object.
6. Dimension lines should never be broken, even if interrupted by another.
7. A slim block arrow head should be used at the end of a dimension line indicating the position of the part being dimensioned.
8. On **horizontal** dimensions the number should always be placed above the dimension line and in the centre of the dimension line.
9. On **vertical** dimensions the numbers should always read from bottom to top and be placed on the left hand side of the line. They should also be kept central.

Task:



Q. Describe 4 mistakes that has been made with the dimensioning in the plan.



Exam Q

Explain why it would be useful to adhere to British Standards conventions and protocols when sharing drawings. **(2)**

Exam Q

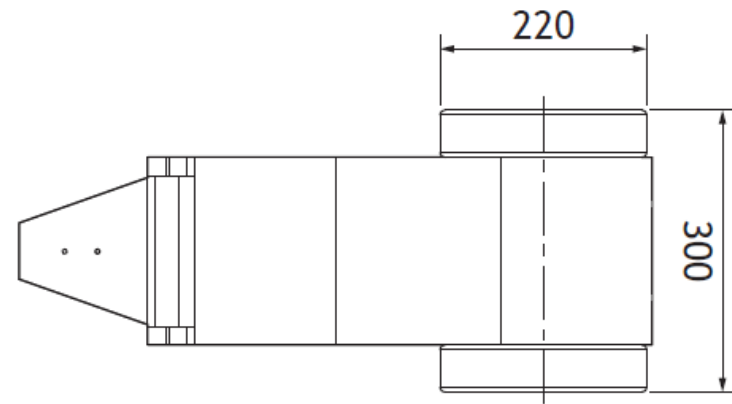
Explain why it would be useful to adhere to British Standards conventions and protocols when sharing drawings. **(2)**

Answer from marking scheme:

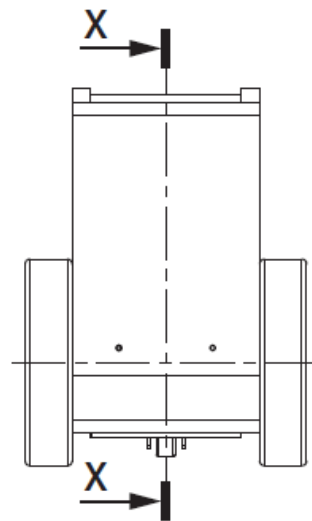
- **Common language**
- **Aids understanding of drawings**
- **Multiple people can be working on the same project so having this would standardise everything.**

Exam Q

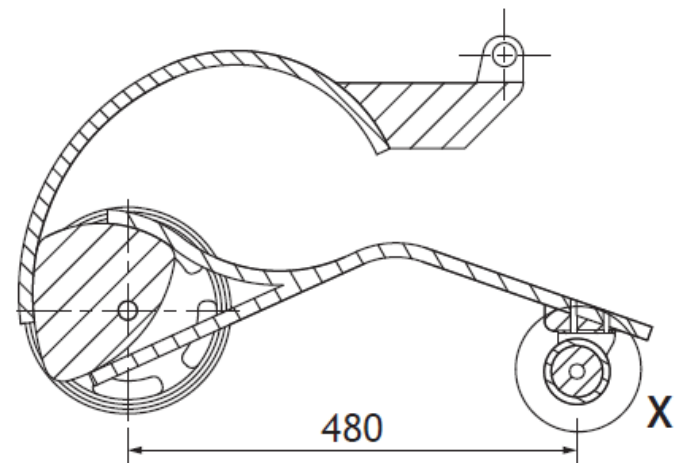
Find the **6** errors in the drawing.



PLAN



ELEVATION



SECTION X-X

Answer

- Incorrect direction of text on dimension 300.
- Missing Diameter symbol on 220.
- Plan or Section X-X wrong orientation.
- View incorrectly labelled.
- Cutting plane arrows on wrong side.
- Centre lines missing at detail X.
- No projection symbol.
- Several centre lines missing (1 mark for each, must be clearly identified).
- Hatching missing from handle feature on section X-X.

