Orthography

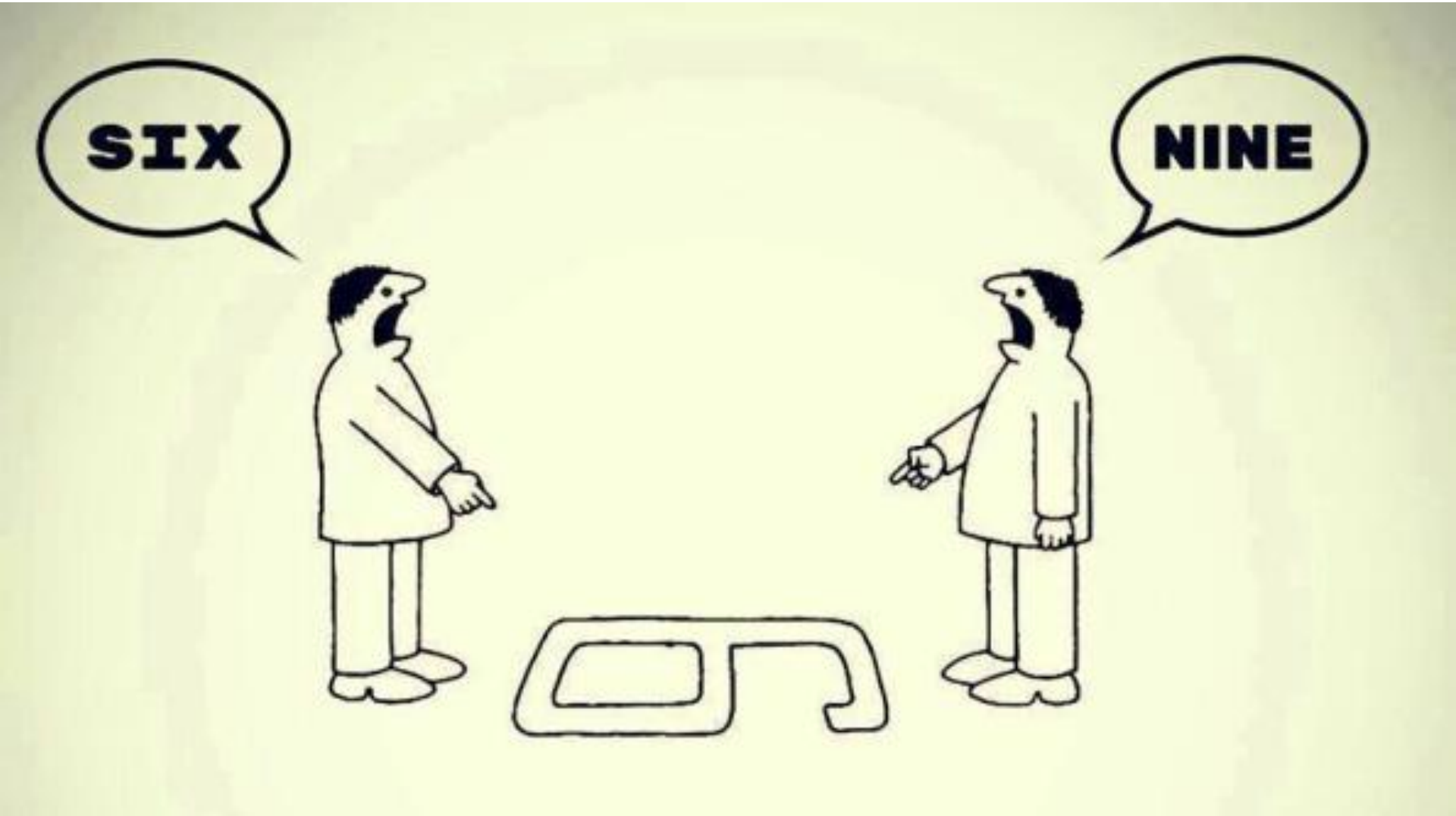
Orthography is the set of conventions for writing a language.

Orthographic Drawing are the set of conventions for writing a Visual language.

Why orthography is important

- Orthography is important so that the part drawing are comprehensible.
- Orthography is the grammar for engineering drawing
- Common rules applied across the boundary and all medium of drawing (3D, 2D , Softwares, Hand drawn sheet)
- As Drawing is visual communication medium, information are facts indeed
- Doesn’t leave any gaps for assumptions or miscommunication.
- Provides all necessary information that is required for a part drawing.
- Convert a 3D object into multiple projection for dimension accuracy and simplicity.
- Orthographic drawings are also called as Spec sheet. Spec sheet means specification sheet.

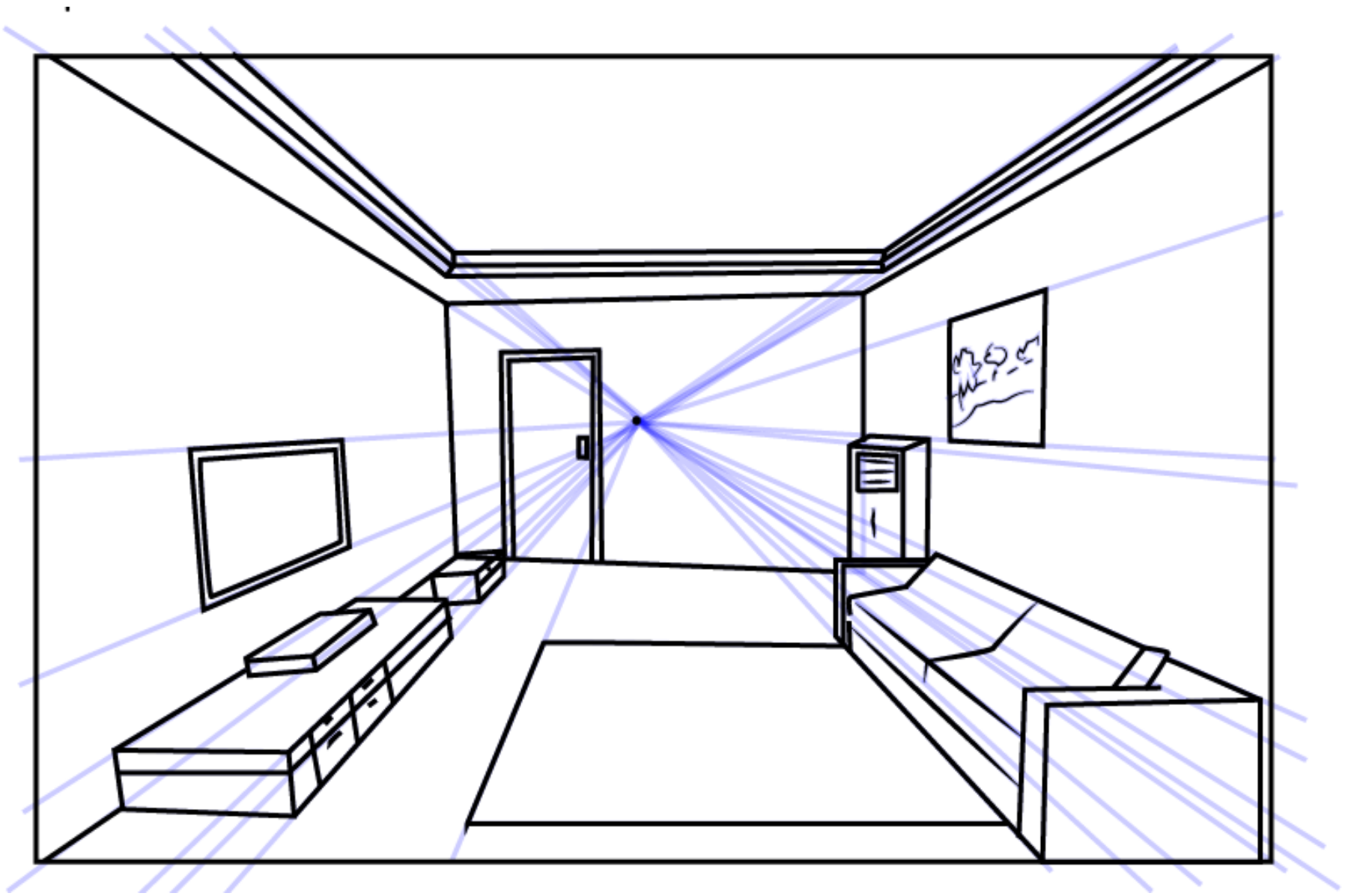
Perspective



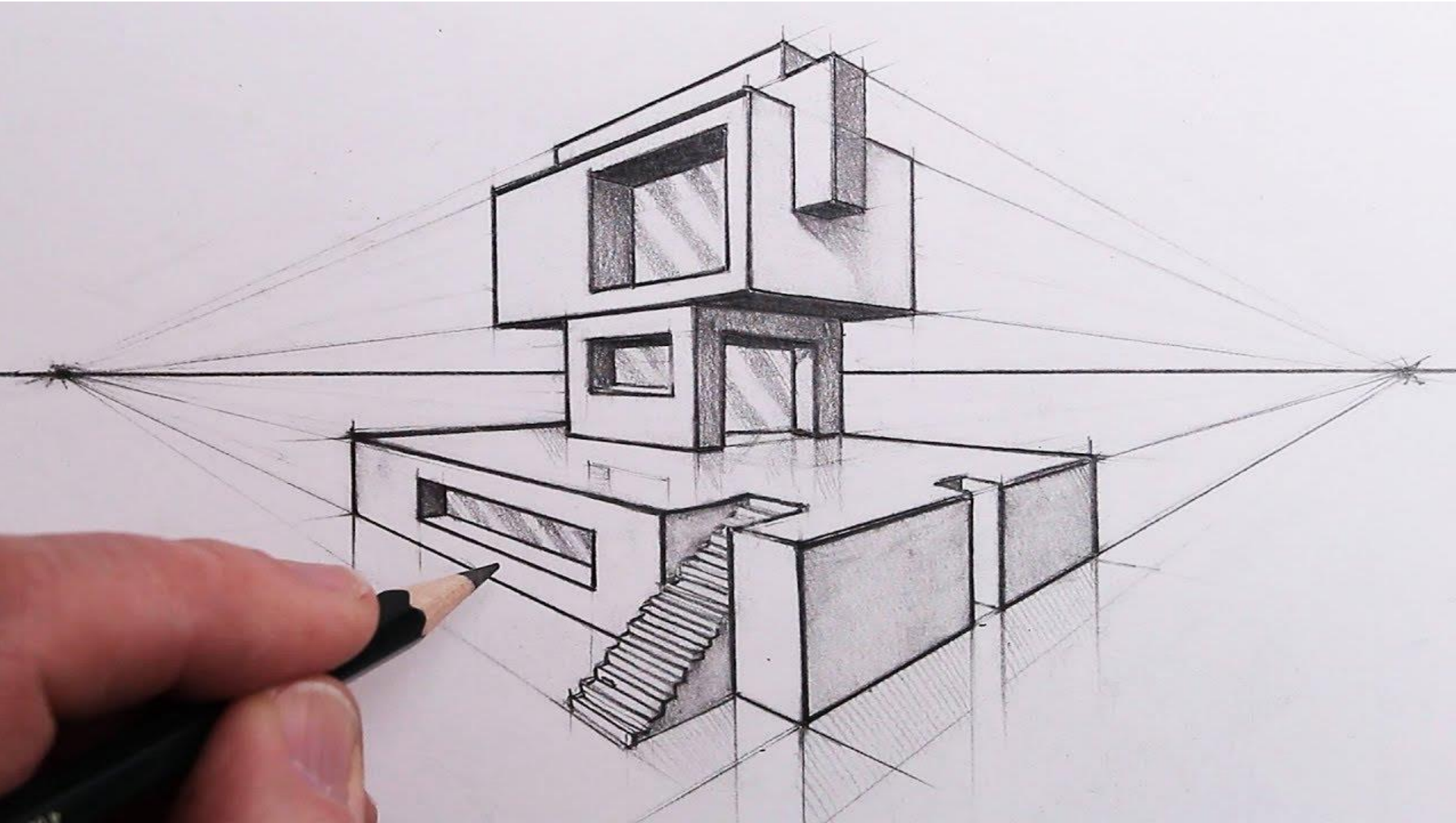
Perspective vs Orthography

- As you can see in the above example, perspective can be multidirectional.
- Perspective drawing can be misleading.
- Orthographic drawings are not an abstract piece of information rather they are absolute.
- In orthography , perspective are restricted to how you are seeing an object and referred to as projection.
- Perspective drawing are important tool for visual communication as they are measures to represent the world that one see from their eyes.

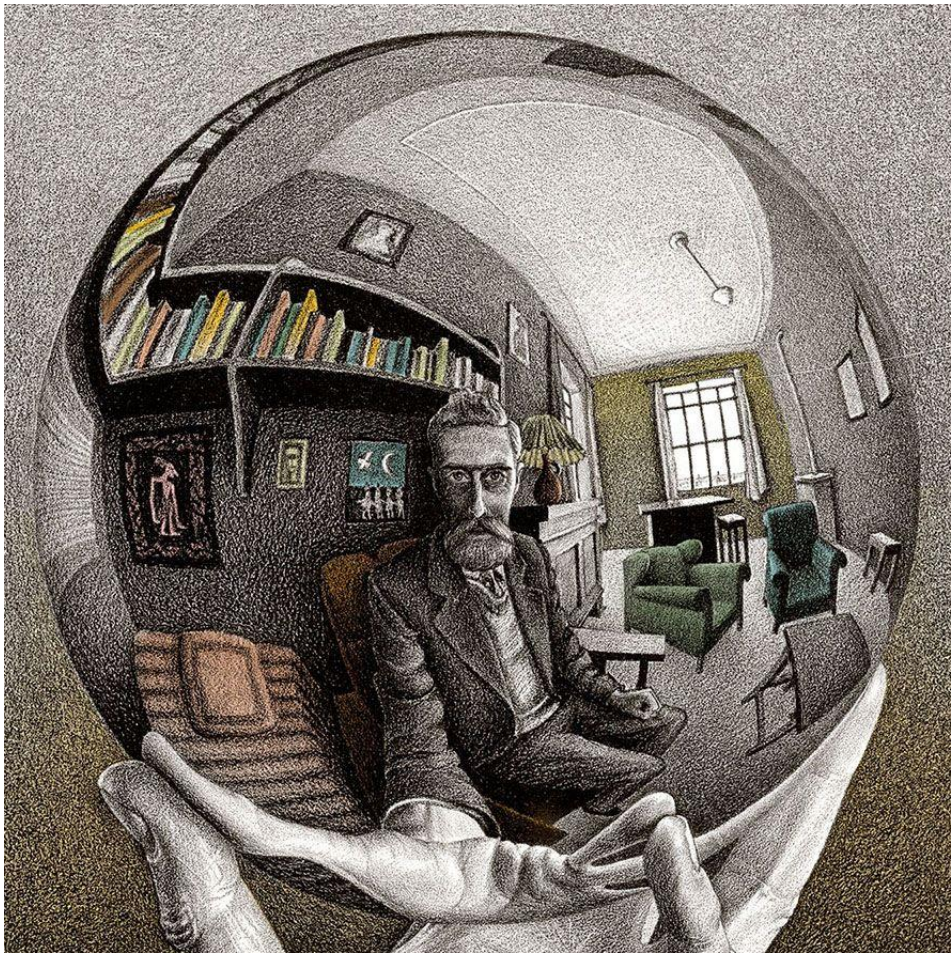
One point perspective



Two point perspective



Fish eye



Orthographic Projection

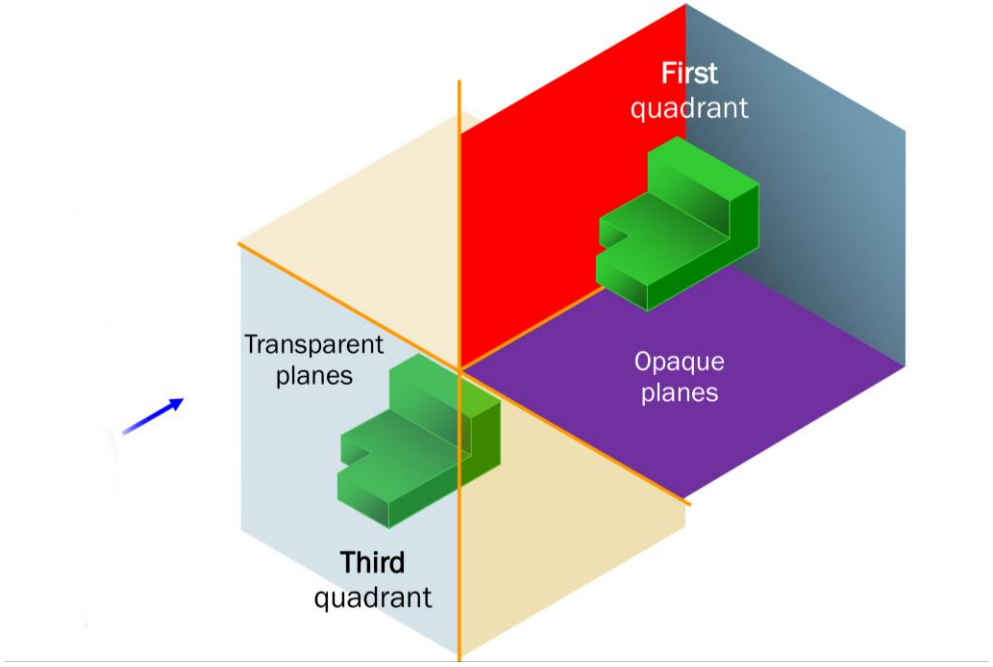
There are two projection that the we currently follows

3rd angle projection

- Glass box projection
- The object is imagined to be in a transparent box, the projection casted on the glass are considered.

1st Angle Projection

- Natural state of projection
- The projection of the objects casted on the opaque planes are considered.



3rd angle projection

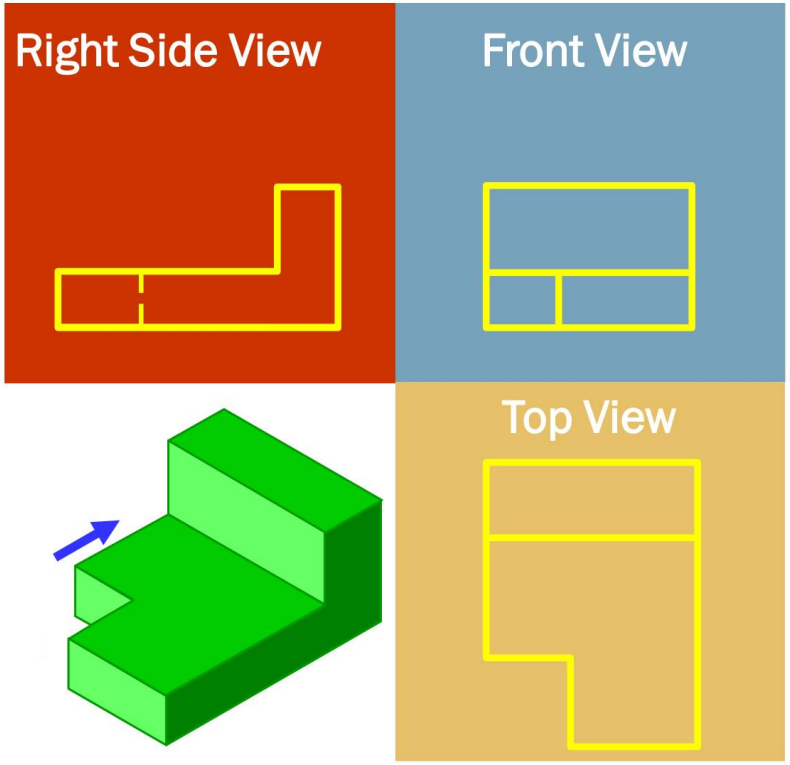
1. The front view(F.V.) remain in the middle
2. The top view(T.V.)remains on top of F.V.
3. The bottom view(B.V.) remains in bottom of the F.V.
4. The left hand view(L.H.V.) remains in the left side of F.V.
5. The right hand view(R.H.V. remains in the right side of the F.V.
6. Rear view(R.V.) is generally avoided but if necessary is presented adjacent to L.H.V.

1st Angle Projection

1. The front view(F.V.) remain in the middle
2. The top view(T.V.)remains on bottom of F.V.
3. The bottom view(B.V.) remains in top of the F.V.
4. The left hand view(L.H.V.) remains in the right side of F.V.
5. The right hand view(R.H.V. remains in the left side of the F.V.
6. Rear view(R.V.) is generally avoided but if necessary is presented adjacent to L.H.V.

It has been observed that the two projection system tend to create a confusion in students, to avoid such confusion following practices are recommended.

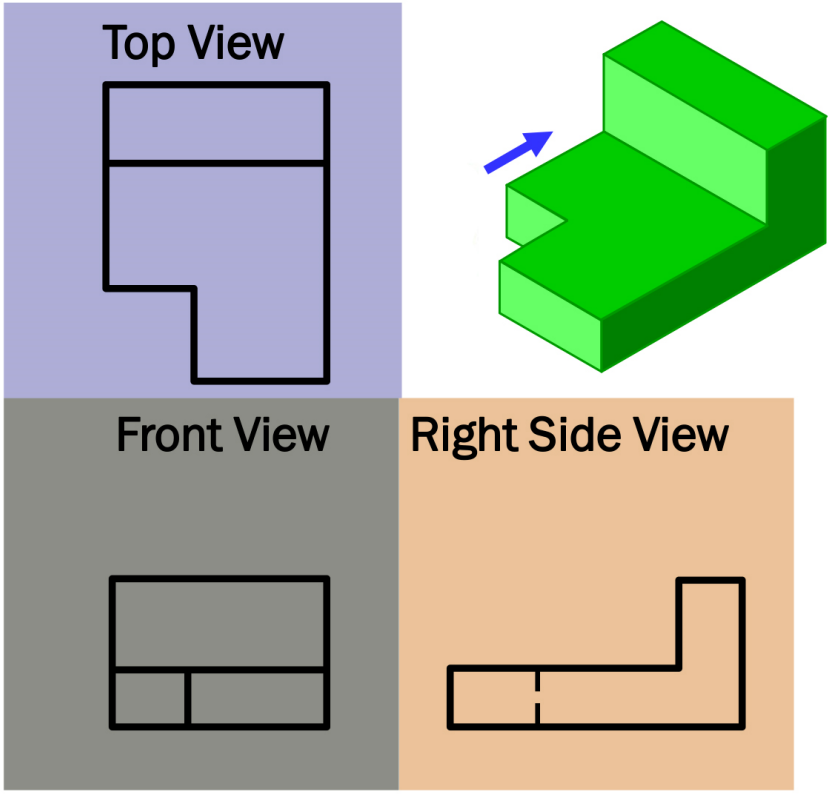
1. Stick to either one angle of projection.
2. For 1st angle. Imagine the object in a corner (lets say where two walls and the floor coincide.)
3. After choosing the appropriate front view
4. If you have to pick top view , you will see the face of the object facing the roof and the projection that you will get of the face will be on the floor and hence the top view projection will be on the bottom of front view.
5. Similar steps to be followed for all other views.



1st Angle projection

It has been observed that the two projection system tend to create a confusion in students, to avoid such confusion following practices are recommended.

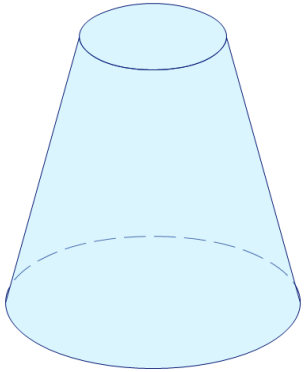
1. Stick to either one angle of projection.
2. For 3rd angle. Imagine the object in a transparent box.(lets say in an aquarium with all 6 sides made up of transparent glass.)
3. After choosing the appropriate front view
4. If you have to pick top view , you will see the face of the object facing the roof and the projection that you will get is on the top of the aquarium and hence the top view projection will be on the top of front view.
5. Similar steps to be followed for all other view



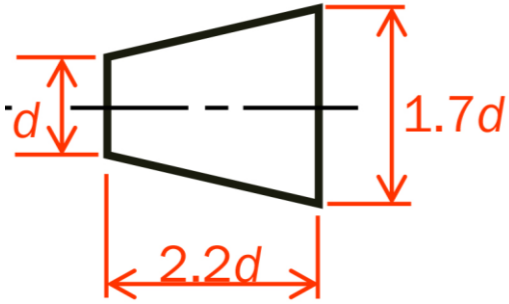
3rd Angle projection

Symbol of Projection

1. The symbol of projection is given by a 3D conical frustum as shown in the figure.

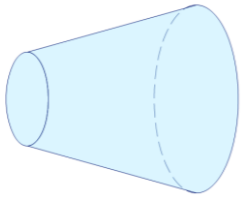


2. Note the dimension of the frustum is given in relation to the dia of the smaller circular surface.



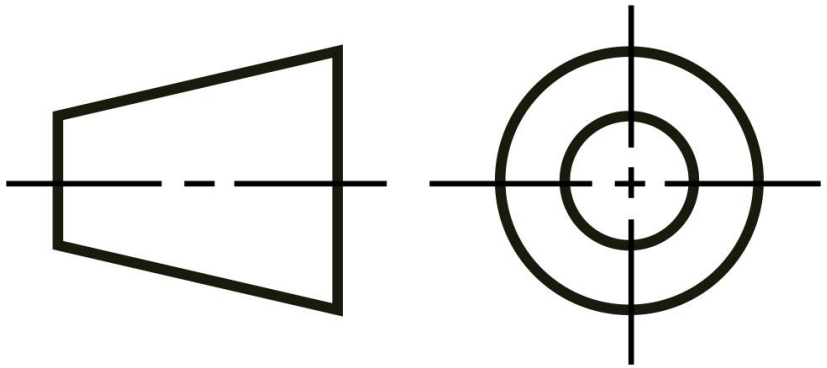
3. The projection derived from the conical frustum represents the kind of projection.

Symbol of Projection

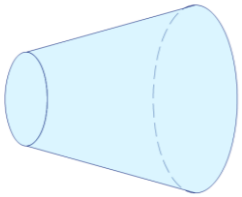


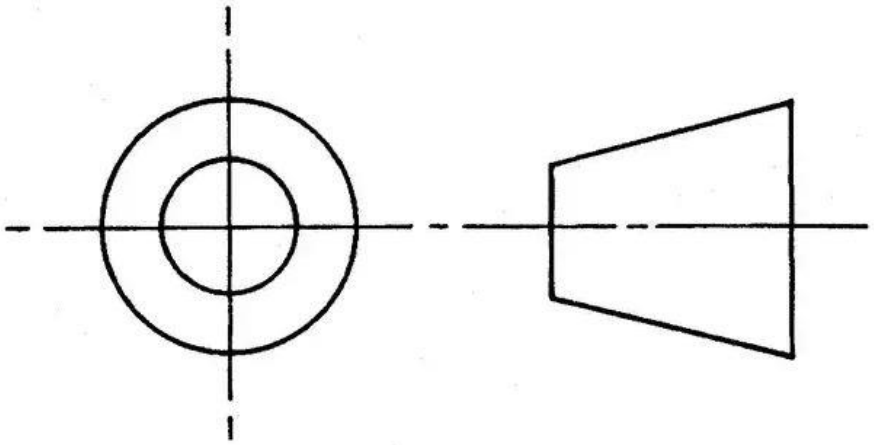
1st Angle Projection

1. For 1st angle. Imagine the Frustum in 3 plane corner
2. After choosing the appropriate front view
3. The projection will come after the object and hense the symbol is as shown in the figure.



Symbol of Projection



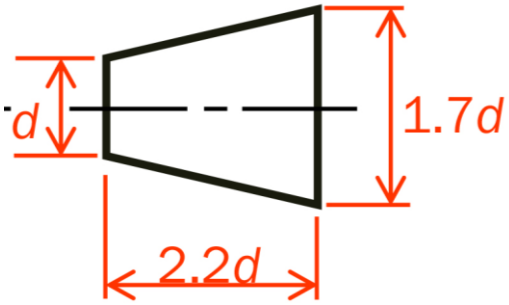


3rd angle projection

1. For 3rd angle. Imagine the Frustum in a transparent box.
2. After choosing the appropriate front view
3. The projection will come before the object and hence the symbol is as shown in the figure.

Assignment

- Take a mathematical value(e.g 20 mm) of diameter ‘d’ and draw symbol for 1st angle projection and 3rd angle projection.
- Write down all the calculation done using your own handwriting and submit a PDF with your name roll number and signature and send it to



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Any body found to be copying assignment will be considered no submission