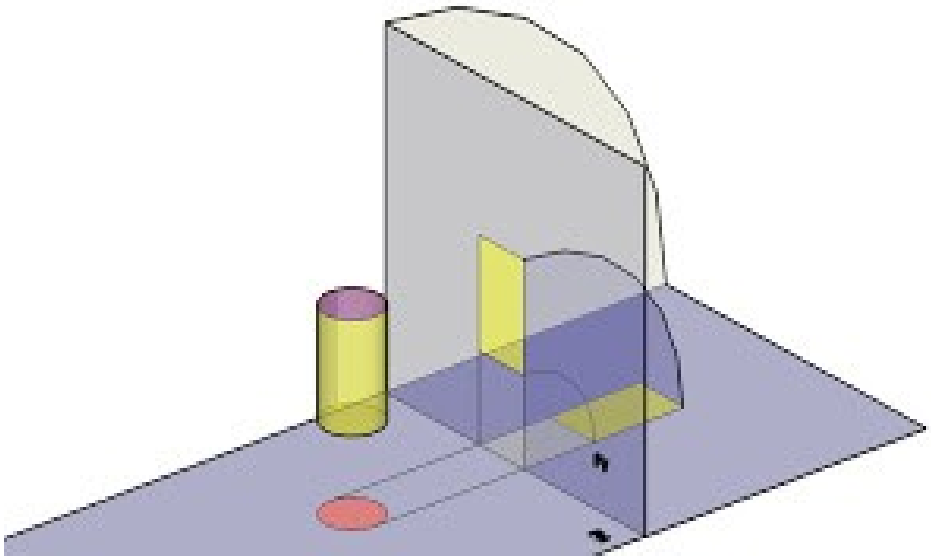


DYHEDRAL SYSTEM : ORTHOGONAL VIEWS

3º E.S.O / VISUAL ARTS

3th evaluation

▲

Teacher: María José Relaño Cotta

DYHEDRAL SYSTEM : ORTHOGONAL VIEWS.1. VOCABULARY

1.a MATERIALS AND INSTRUMENTS FOR DRAWING

Ruler : regla

45 degree set square : escuadra

60 degree set square : cartabón

Protractor : transportador

Compass : compás

Scissors : tijeras

Pencil sharpener : sacapuntas

Eraser : goma de borrar

Hole punch : máquina perforadora

Graphite pencils : lápices de gráfito

Coloured pencils : lápices de colores

Coloured marker pens : rotuladores

Mechanical pencils : portaminas

1.b GLOSSARY

Background: fondo

Colour wheel: círculo cromátic

Dihedral : sistema diédrico

Ground line : línea de tierra

Horizon line: línea de horizonte

Vanishing line : línea de fuga

Vanishing point : punto de fuga

Viewpoint : punto de vista

Distance : distancia

Drawing plane : plano de dibujo

Freehand : a mano

Grid : cuadrícula

Midpoint : punto medio

Pattern : motivo

Pencil drawing : dibujo a lápiz

Perpendicular bisector : mediatriz

Procedure : procedimiento

Radius : radio

Shadow : sombra

Sketch : dibujo

Sloping :

Stroke : trazo

Thickness : Espesor

Tracing paper : Papel vegetal

1.c VERBS

To sharpen graphite pencils : afilar lápices de gráfito

To use graphite pencils : usar lápices de gráfito

To position the model : posicionar el modelo.

To obtain the plan, the elevation, the right o left profile

To go over the view with a thicker line.

2. TEXTS

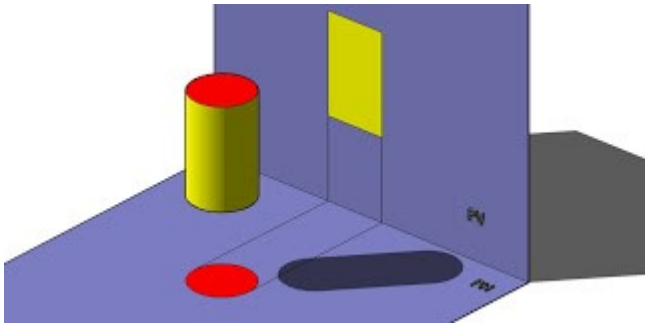
2.a SYSTEMS OF REPRESENTATION

Systems of representation are graphic languages that materialise and specify the biunique correspondence between three-dimensional and two-dimensional spaces. They are a very important part of descriptive geometry.

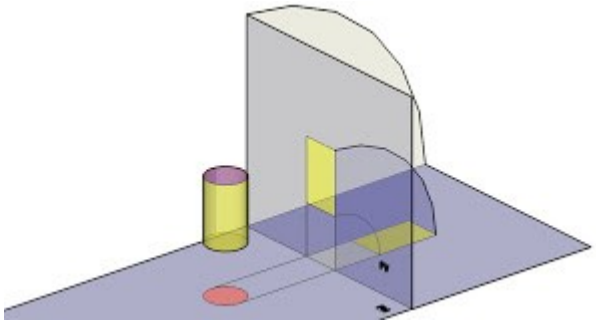
2.b FOUNDATION OF DIHEDRAL SYSTEM

The dihedral system is a method of representation of multiple projections, where the elements are defined by their orthogonal projections on at least two planes of projection.

Projection planes that we use are generally 3: **plan, elevation and profile** . Once they have been projected onto each of them the **orthogonal views** of the object are rotated until they match the three in the same plane. Figure cylinder projecting a point by point on the horizontal plane and the vertical PH PV. As is done by perpendicular, the circumference of the base becomes the elevation in a straight line, as the plane that contains perpendicular to the vertical. For be parallel to the floor, the upper face of the cylinder on this plane is transformed Like a circle. The line of intersection of vertical and horizontal plane is called **land line** .

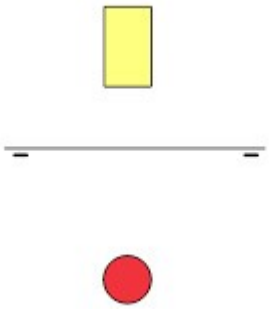


Then turn the vertical plane 90 degrees until it coincides with the horizontal axis of rotation taking as the ground line. The rotationcauses the two views are perfectly aligned in lines orthogonal to the ground line.

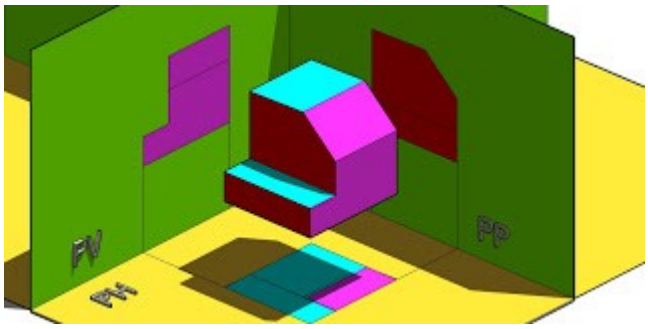


The two views dihedral (in plan and elevation) would in this way. After the rotation of the object dihedral projections are always correlated.

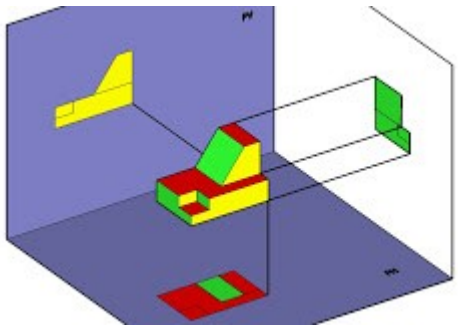
We removed the reference contour of the two planes and we already have the plan and elevation. The earth line is represented by a straight dihedral system which separates the ground and with two elevation of the segments at their ends.



I f the part has more complexity can be necessary to represent another view in a projection plane. In the figure we see the plane of the profile (PP).



In the figure we see in yellow what is projected in the vertical plane, in red and green on the green horizontal and the plane of the profile.



In the plant is placed orthogonal projection of the piece "view" from above (in yellow and light blue). Correlative to the above lists the elevation is the front view (orange, green and dark blue) and finally the profile of the (pink), as its name. The parties are not visible to the observer as part placed above to see the plant, or front to see the elevation are discontinuous. Dotted lines are lines that exist that are intersection of surfaces but which can not be appreciated by being behind a face.

3. ACTIVITIES

In this unit the pupils have to draw the three main projections (**plan, elevation and profile**) of the models given in isometric projection.

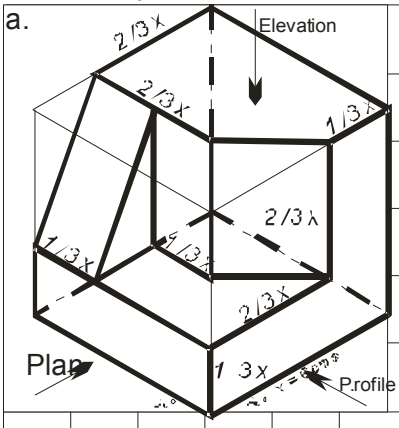
The viewpoint of the plan is established in each model so the procedure for the pupils to follow to solve the exercices has these steps:

- Draw every plane seen from every viewpoint.
- Go over the three orthogonal views with a thicker line.
- If the main viewpoint isn´t chosen, choose it attending to the model´s shape.

Draw the three main projections (**plan, elevation and profile**) of the models given in isometric projection.

Dihedral system / 1st sheet Name_____Group__

a.



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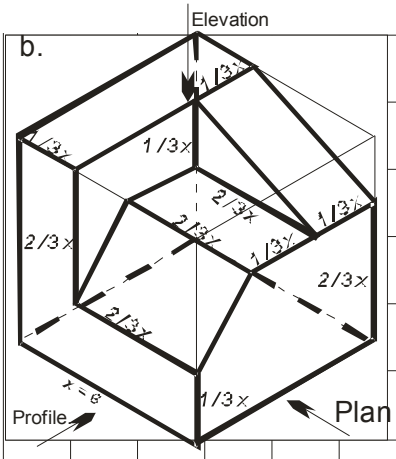
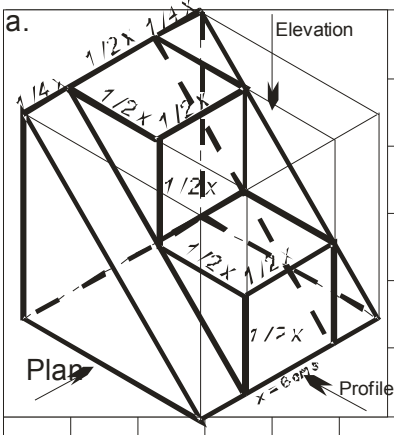


Draw the three main projections (**plan, elevation and profile**) of the models given in isometric projection.

2nd sheet

a.



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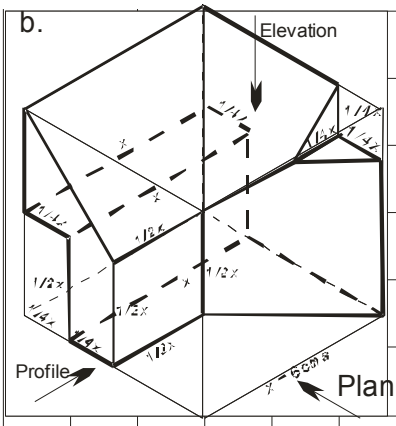
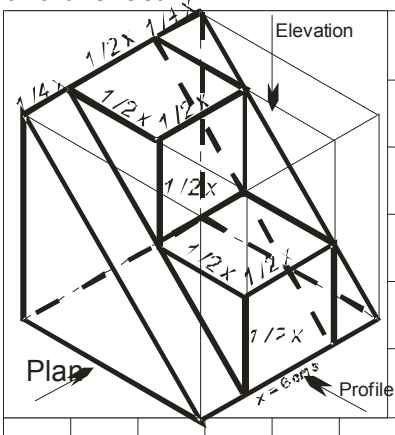
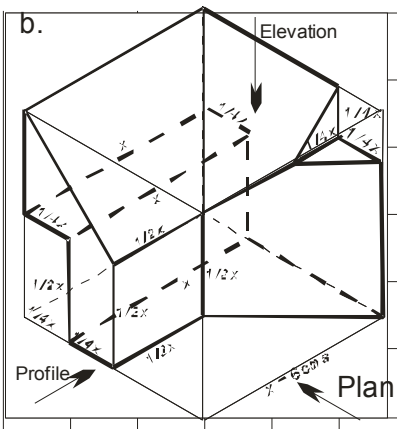


Draw the three main projections (**plan, elevation and profile**) of the models given in isometric projection.

a. 3rd sheet



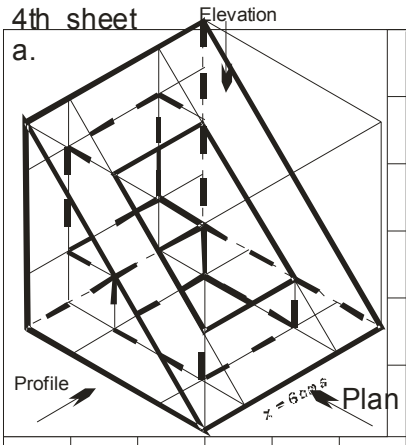
b.



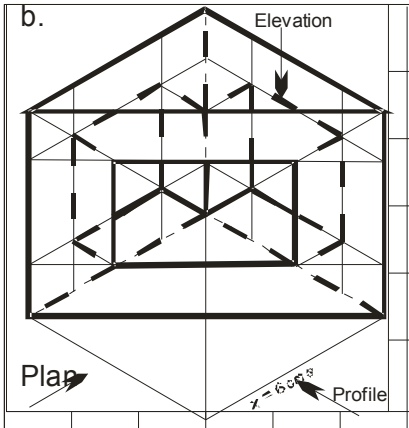
Draw the three main projections (**plan, elevation and profile**) of the models given in isometric projection.

4th sheet

a.



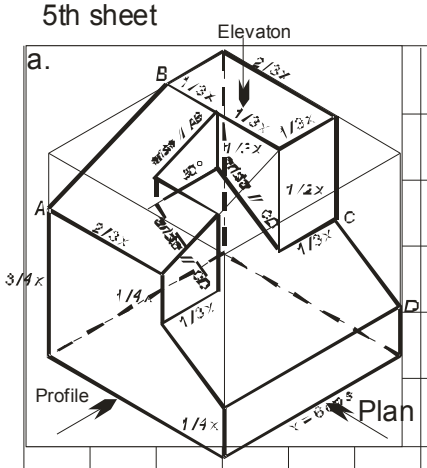
b.



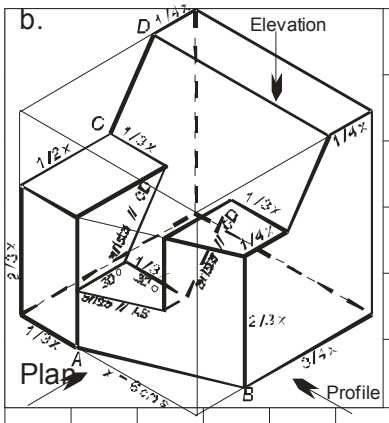
Draw the three main projections (**plan, elevation and profile**) of the models given in isometric projection.

5th sheet

a.



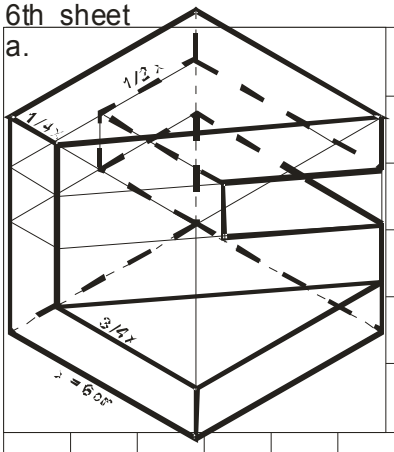
b.



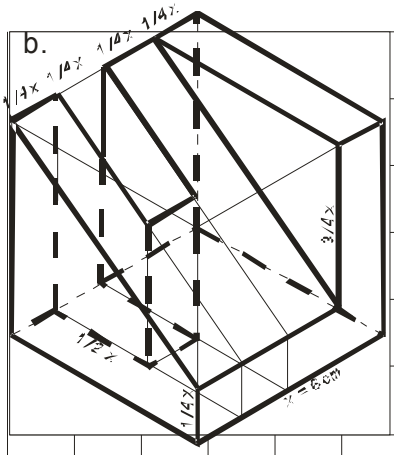
Draw the three main projections (**plan, elevation and profile**) of the models given in isometric projection.

6th sheet

a.



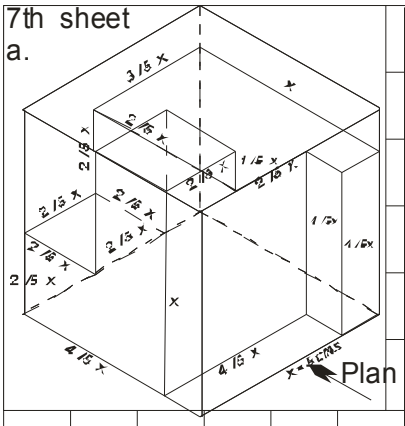
b.



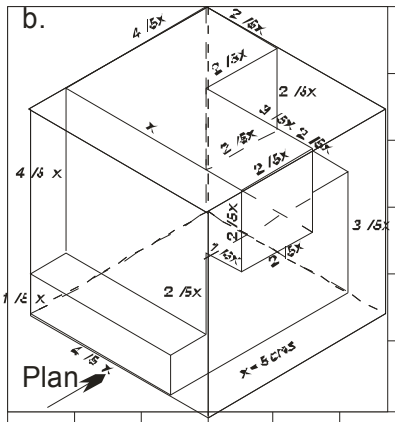
Draw the three main projections (**plan, elevation and profile**) of the models given in isometric projection.

7th sheet

a.



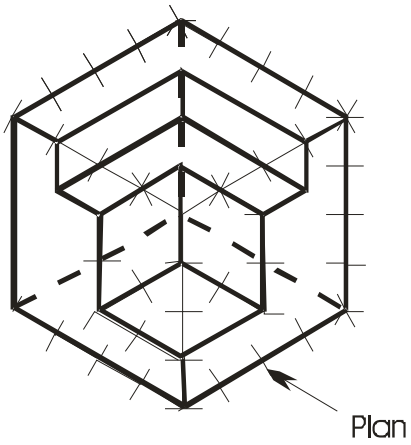
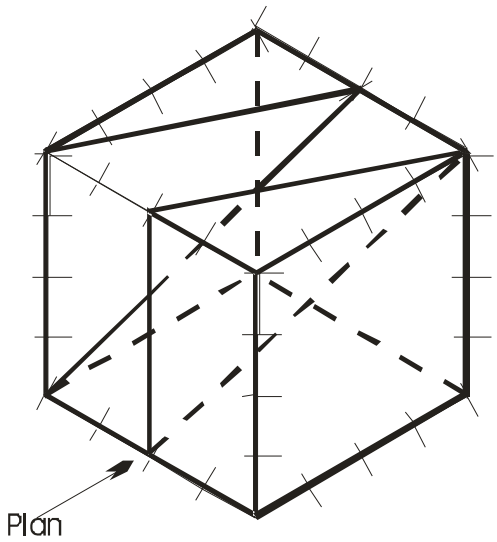
b.



4. EVALUATION.

Exam

A. Draw plan, elevation y profile of the model.



A. Draw plan, elevation y profile of the model.