

Episode 16 – Cross sections of a cube

European section – Season 2

What is a plane section ?

- A solid (a cube for example).
- A plane intersecting the solid.

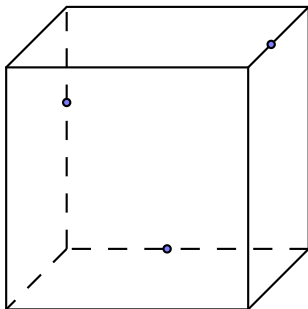
The section is :

The polygon whose sides are the segments intersections of the plane with each of the polyhedron's faces.

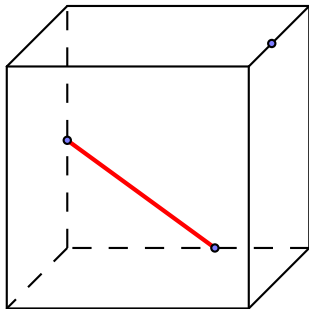
What we must find :

- The intersection of the plane of section with each face of the cube.
- The intersection of the plane of section with each edge of the cube.

An example :

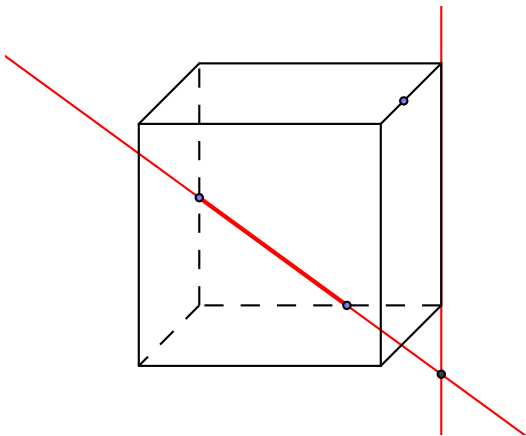


Rule 1 : You can join two points of the section if they are on the same face.

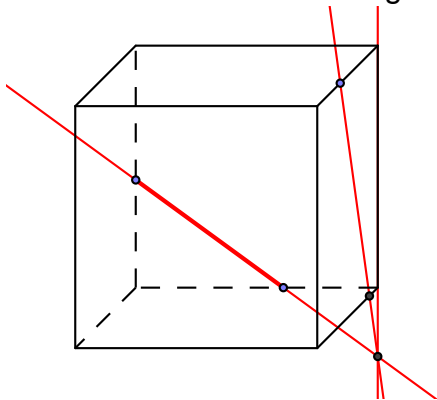


Method

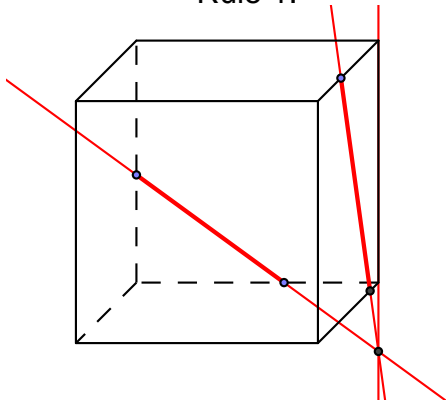
Rule 2 : When a line of the section plane is in a face, and a third point is on a face with an edge in common, you can draw the intersection of the line with the common edge.



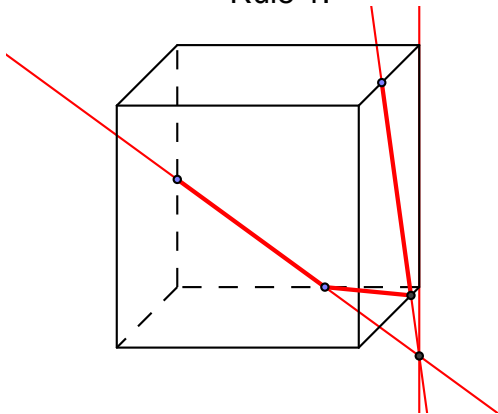
Rule 3 : When a line of the section plane is in a face, you can build its intersection with an edge of the face.



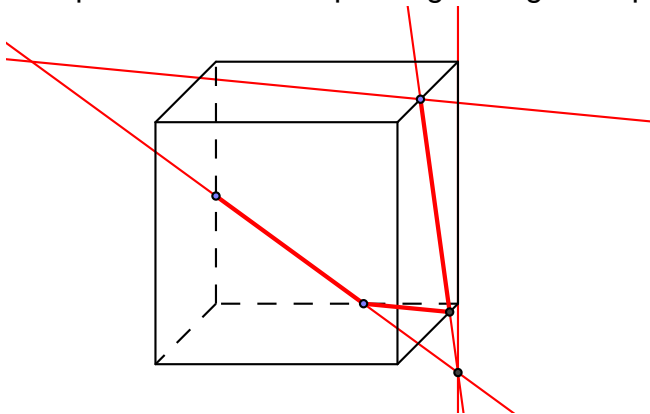
Rule 1.



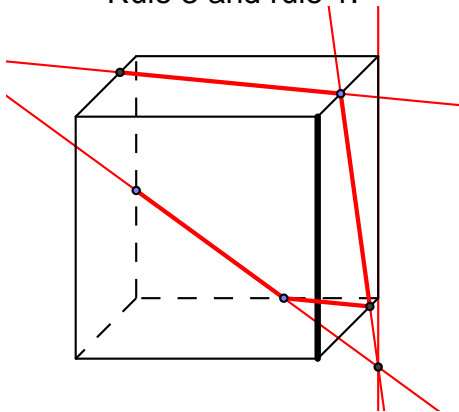
Rule 1.



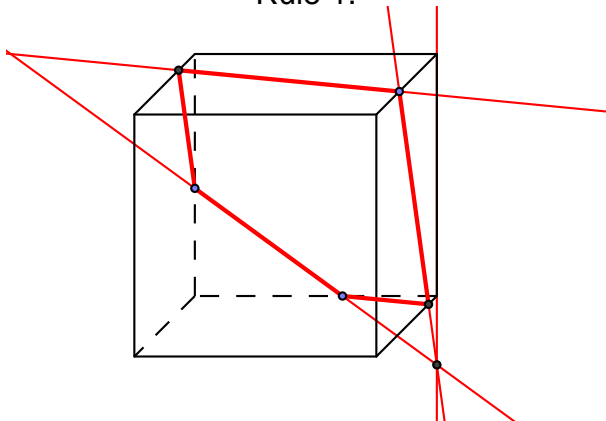
Rule 4 : When a line of the section plane is in a face and a point of the section plane is on a parallel face, you can draw the parallel to the line passing through that point.



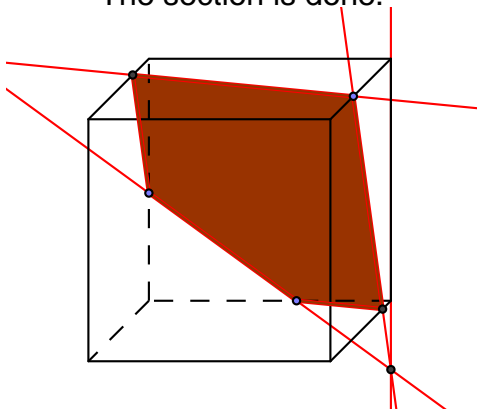
Rule 3 and rule 1.



Rule 1.



The section is done.



The four rules

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Rule 1 : You can join two points of the section if they are on the same face.

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- Rule 1 :** You can join two points of the section if they are on the same face.
- Rule 2 :** When a line of the section plane is in a face, and a third point is on a face with an edge in common, you can draw the intersection of the line with the common edge.

The four rules

- Rule 1 :** You can join two points of the section if they are on the same face.
- Rule 2 :** When a line of the section plane is in a face, and a third point is on a face with an edge in common, you can draw the intersection of the line with the common edge.
- Rule 3 :** When a line of the section plane is in a face, you can build its intersection with an edge of the face.

The four rules

- Rule 1 :** You can join two points of the section if they are on the same face.
- Rule 2 :** When a line of the section plane is in a face, and a third point is on a face with an edge in common, you can draw the intersection of the line with the common edge.
- Rule 3 :** When a line of the section plane is in a face, you can build its intersection with an edge of the face.
- Rule 4 :** When a line of the section plane is in a face and a point of the section plane is on a parallel face, you can draw the parallel to the line passing through that point.