Plane sections of solids

Plane sections of prisms

1) The first point (vertex) of the section is constructed as the intersection of one lateral edge of the prism with the section plane.

2) To construct remaining section points we use the affinity between the section and the lower base:

The axis of affinity = a line of intersection of the plane of the base with the section plane

A pair of corresponding points = one point (vertex) of the base and one point of the section on a corresponding lateral edge

Plane sections of pyramids

1) The first point (vertex) of the section is constructed as the intersection of one side edge of the pyramid and the section plane.

2) To construct remaining section points we use the collineation between the section and the lower base:

The axis of collineation = a line of intersection of the plane of the base with the section plane

The center of collineation = the apex of a pyramid

A pair of corresponding points = one point (vertex) of the base and one point of the section on a corresponding lateral edge

The plane section of the cylinder

1) The center of the section is constructed as the intersection of the axis *o* of the cylinder and the section plane.

2) To construct the section (the ellipse) we use the affinity:

The axis of affinity = a line of intersection of the plane of the base with the section plane

A pair of corresponding points = the center of the base and the center of the section curve

Remark: usually a base of solid is in the horizontal projection plane, therefore the axis of affinity or the axis of collineation is a line of intersection of the section plane with the horizontal projection plane, i.e., the horizontal trace line of the section plane. A pair of corresponding points is one point (vertex) or a center of the base lying in the horizontal projection plane and one point or a center of the section.