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MAKING A LINE OF INTERSECTION OF SURFACES

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ABSTRACT

Auxiliary cutting surfaces should be used in such a way that they cross the most convenient line (making, parallel) of the surfaces. Depending on the type of surfaces and their mutual arrangement, the method of conducting auxiliary crossing planes or surfaces is selected.

Drawing geometry is a branch of geometry that studies the ways in which spatial figures are described in a plane and solved spatial issues with them. Drawing geometry, in the practical activities of Engineering, came into being astasekin; it was used in the clay of structures and machines, in the Fine Arts and other fields. Urta Asian architects used geometric shapes in the design of buildings, bridges with ham domes. Drawing geometries are now widely used in the construction of buildings and structures of different geometric shapes.

There are 2 ways to depict spatial figures in a plane: central projection and parallel projection. For example, photographs of objects and shadows of objects from light rays formed in the plane are central projections. An image made by the central projection method is called perspective. In the perspective image, it is impossible to determine the shape and size of the figure (1rasm). In the Parallel projective ya L ash, the projection Center on the central projective is assumed to be in 5 infinite nodes. In Parallel projection, the exact direction of the projective straight lines must be given. The appearance of a shadow of objects from the sun or moon is an example of parallel projection.

Rectangular projection of figures into two mutually perpendicular planes is called orthogonal projection. Sometimes, in order to perfect the drawing, a plane (profile plane) is used that is perpendicular to both the horizontal and frontal planes. Drawings are easily made by means of orthogonal projections, the dimensions (height, width, height) of what is described in orthogonal projection (isometry)can be directly anicized (2rasm). But such a drawing does not give a clear idea of the item. From it, it is especially difficult to bring to the eyes the spatial shapes of complex figures. Therefore, an orthogonal projection-based image of a thing with its axonometric projection, the so-called Number-defined projections are often used in spatial construction work. In this, points are orthogonal projected onto the plane of projections, and number — Heights representing the plane situation of the point are skewed next to the projection. In order for this drawing to be ayonic, a line of heights is passed through points of the same height. If the surface (relief) of the Earth is to be described in the drawing, a horizontal projection plane is used. In this, the sathchizi are called horizontal ones. Depending on the shape and location of the Horizons, an idea can be formed of the part of the Earth's surface being depicted. Such a method of surface imaging using a system of Horizons is called a topographic method (3rasm). Drawing geometries are widely used in architecture, Fine Arts, Technology and other fields.

Machine details, parts of various engineering constructions consist of the sum of geometric surfaces, which can intersect in curved or broken lines. When describing them in drawings, one has to make lines of geometric surfaces. The line of intersection of surfaces belongs to both surfaces, and to make it, the geometric positions of several points of this line of intersection are determined. These points are found using an auxiliary surface (plane) that crosses both. As an auxiliary cutting surface, a plane, a sphere, a cylinder, a cone and the like can be obtained. Auxiliary cutting surfaces should be used in such a way that they cross the most convenient line (making, parallel) of the surfaces. Depending on the type of surfaces and their mutual arrangement, the method of conducting auxiliary crossing planes or surfaces is selected.

Depending on the type of surfaces and the mutual location of the connection, it is considered how auxiliary cutting planes or additional surfaces should be transferred.

1. Given two cylinders (prisms), let the cutting plane cross through the pliers of both.

2. While one of the surfaces is a cone (pyramid) and the other is a cylinder (prism), let the cutting plane cross through the yasovers of the cone and cylinder, or through the parallels of the cone and the yasovers of the cylinder.

3. While the two surfaces are conical (pyramid), the cutting plane can be cut through their ends by their pliers or through the parallels of the two.

4. Given rotational surfaces, let the cutting plane intersect through the parallels of both.

5. While the axes of rotation surfaces intersect in the Prime meridian plane, the auxiliary cutting surface uses large and small spheres.

When two surfaces intersect with each other, there may be the following cases:

1. The surfaces intersect partially. The intersection line is an entire spatial line, which is called the “0-fold (or kissing phenomenon)” of the state. Here, a number of creepers of surfaces do not participate in the intersection. The second surface (cylinder) was depicted in a thin line so that the line of intersection was clearly visible.

2. The surfaces intersect completely. The intersection line is two independent curves, one called the “input” and the other the “output” lines. Here one surface pierces the other. Therefore, if the yasovites of one participate in full, then the yasovites of the other participate in part.

3. Surfaces intersect in a one-way attempt. The intersection line of the two surfaces is similar to the number eight and intersects through one point, separating into two independent curves. Here, the” input “and” output " curve will have one common intersection point.

4. Surfaces intersect in two-way attempts. The intersection line of the two surfaces intersects at two points and splits into two independent curves. Here, the intersection line” in

“and” out " will have two common meeting points. Now, proceed directly to the definition of the line of intersection of surfaces.

1. The method of using auxiliary cutting planes.

One of the prisms is given in vertical, the other in horizontal situations. Since the vertical Prism is a horizontal projection, the projection of the intersection line at H is joined by the Triangle. In such cases, a single projection of the intersection line of surfaces is defined. Since the given surfaces are polyhedra, the line of their intersection is the broken lines, and the break points correspond to each edge of the polyhedron. First the projections of these refractive points are determined and they are sequentially adjacent to form a line of intersection between the two surfaces.

1. A horizontal projection Th is passed through the A's edge of the vertical prism, and through its line of intersection with the horizontal prism, the intersection points “3 and 4“ are found on the “A and B“ edge of the vertical prism.

3. Through the Os E' edge of the vertical prism, the next horizontal projective RH plane Trace is passed, and with the help of its intersection line with the horizontal prism, points “5 and 6” are found in the “E” Projection of the CE edge. In this order, points" 7 and 8 “are defined in P' G”.

4. Visible and inconspicuous parts of the intersecting line of surfaces are identified. Broken lines 2“ 5“ 7“ and 4“ 6“ 8“ lying on the front sides of the vertical Prism are visible, while broken lines 2“ 3“ 1“ 7“ and 4“ 8“ on the back side are not visible.

5. The sequence of positions relative to each other is taken into account when capturing the projections of the intersecting lines of surfaces at the points where they are found. The” input " line is first defined. To do this, take one of the surface and its edges and take the vertical prism as the surface and one of its edges A‘ and V.

First , the horizontal projection C of the attempt Point C (C, C) where one edge of the prism is trying on the edge yasovci of the cone is found.

1. The frontal projection of the line of the prism intersecting with the cone is represented by the projection (triangle) on V of the same prism. Hence, a horizontal projection of the intersection line is found here.

2. A horizontal plane Trace is passed through the A“ edge of the prism, and its intersection line at H with the circle at the intersection points of A* B 1' 2' are found.

3. In this order, the points of intersection of the E*P edge of the prism with the cone are found 4‘ 5‘.

4. In order to make the intersection line points easier to grip, intermediate horizontal planes are passed between the prism edges, and with them additional points related to the intersection line are found.

5. All points on the line of intersection of surfaces are sequentially contiguous. Here, the line of intersectionality of the surface is described in a holistic way, since one edge of the prism has attempted a cone.

Intersecting surfacing is when both are rotational surfaces, then planes intersecting the parallels of the couplings are used.

Example. Let the line of intersection of the rotational surfaces given in the form of one paraboloid (conditional) and the other ellipsoid be determined.

1. A horizontal trace of the frontal plane crossing the prime meridians of the rotational surfaces is passed, and with its help projections of points A and V of the intersection line are found.

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