Improving the Determination of Lines of Intersection of Rotating Surfaces with the Plane in the General Condition Using Multimedia Technology

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Abstract: *In this scientific article, the definition of the lines of intersection of the surface of the cone in the general situation and the plane in the general situation was determined in several stages. With the help of a scientific article, students will have the opportunity to read and analyze a drawing.*

Keywords: *plane, point, projection, algorithm, perpendicular, straight line.*

One of the most promising directions of informatization of the educational process in the field of modern education is multimedia educational technologies. Multimedia educational technologies are characterized by a number of advantages compared to traditional teaching methods: visual, audio, drawing lines in different colors, textual, animated character.

Despite the fact that the preparation of multimedia material requires special knowledge, skills and additional time from teachers, in the future, the organization of lectures and practical classes using multimedia technologies will allow visual presentation of the studied material and save time. which activates the presentation. Used electronic presentations are a combination of text, graphics, computer animation, videos organized in one environment [1].

When multimedia is used in the educational process, additional equipment is required from the computer: CD-ROM disk, headphones, speakers. A special projector and screen are also required for in-room demonstrations. Increasing the productivity of computers has made it possible to widely use multimedia technologies in education. Below we will find a solution to the problem from the subject "Drawing geometry" using the AutoCAD program (based on multimedia technologies).

The main lines of the plane include its horizontal frontal and lines of greatest deviation.

The horizontal of the plane. If the straight line belonging to the plane is parallel to the plane H, then this straight line is called the horizontal of the plane.

If h e P and h ‖ H, then the straight line h is the horizontal line of the planes P.

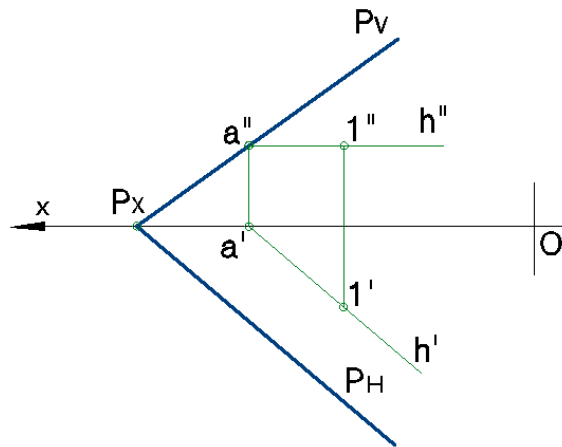**Figure 1**

In the drawing, the frontal projection of the horizontal plane is parallel to Ox, i.e. h″ ‖Ox, and the horizontal projection of the horizontal plane is parallel to the trace of the plane Ш, i.e. h'‖PH (Fig. 1).

Frontal of the plane. If the straight line belonging to the plane is parallel to the plane V, then this straight line is called the front of the plane.
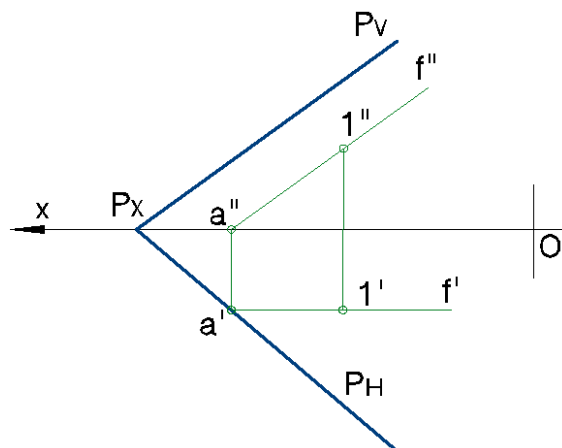

Figure 2

In this case, if f e V and f ‖V, the straight line f is the frontal line of the plane P.

In the drawing, the horizontal projection of the frontal plane is parallel to the axis of projections Ox, that is, f'‖Ox, and the frontal projection of the plane frontal is parallel to the trace of Φ of the plane, that is, f″‖Pv (Fig. 2).

There are two ways to determine a point on the surface of a cone in a special situation: Parallel plane transfer and plane transfer through a given point through the end S of the cone.

The first method is as shown in figure 3- (a) from the frontal projection of the cone V through the point to be determined parallel to the base, passing a plane Q1V and the distance from the point where the central axis of the cone intersects with the plane Q1V to the point where it intersects the side. A circle is drawn by placing the projection H at the end S and drawing a line perpendicular to the Ax axis from the 1″ point on the frontal projection with the created circle, and the points of intersection with the circle determine the location of the point 1″ on H.
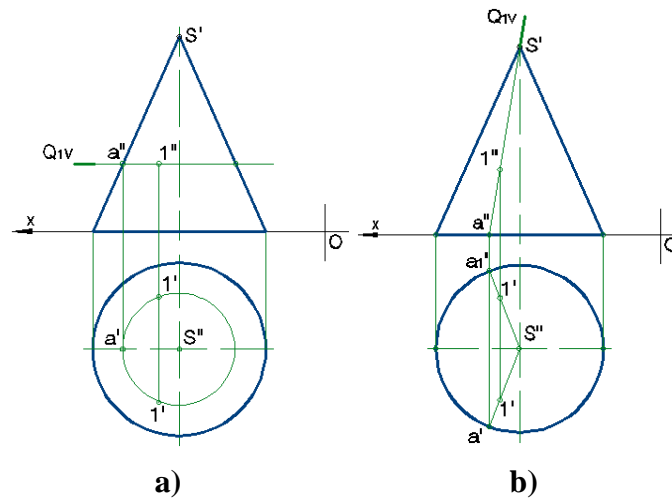
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Figure 3

The second method, as shown in Fig. 3- (b), the plane Q_v1 is passed through the end S" of the frontal projection of the cone V and the given point 1", and continues until it intersects the base of the cone, and we designate the resulting point as a". From the resulting point a" a descriptive line is drawn to the H projection, and points a', a1' are determined, the S' end of the cone is connected with the determined points, and a descriptive line is drawn from point 1" parallel to the Ox axis. This line intersects with the lines a'S' and a1'S" to form the point 1" on the horizontal H and the point 1'.
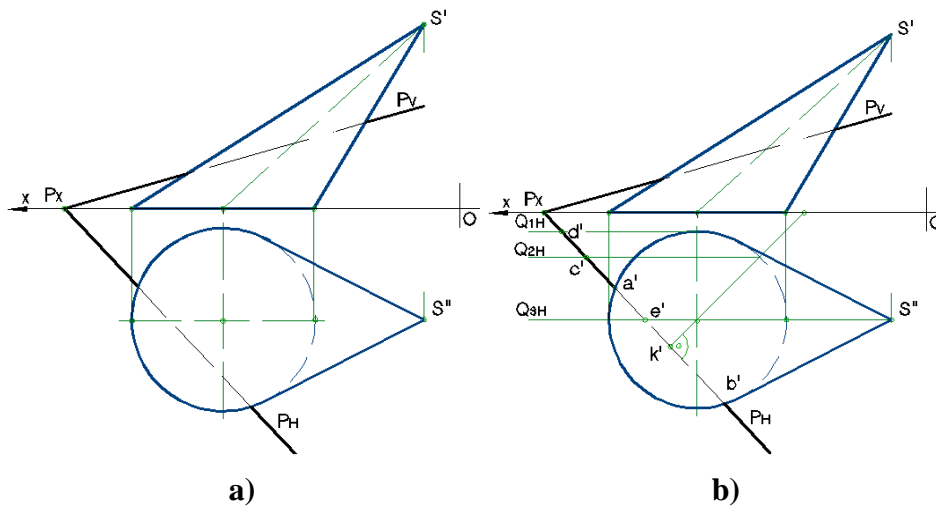

Figure 4

The intersection line of the plane in the general situation with the surface of the cone in the general situation given by its projections is determined based on the algorithm for determining the front of the plane presented above (Fig. 2). (Fig. 4a)

Through the projection H of the cone, planes Q1H, Q2H, Q3H are passed parallel to the axis of Ox (Fig. 4b). Q1H, Q2H, Q3H, points 1",2",3",4", where the frontal projection of the planes intersect with the surface of the cone are determined. The points a', b' intersected by the cone surface of the Φ plane are designated as a", b" in the frontal projection (Fig. 5b).
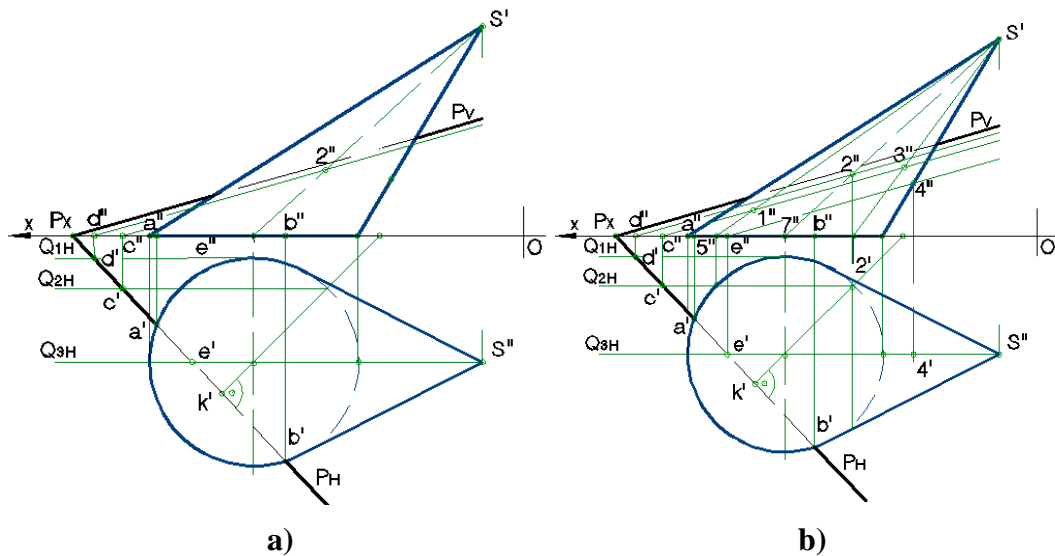
a)   **b)**

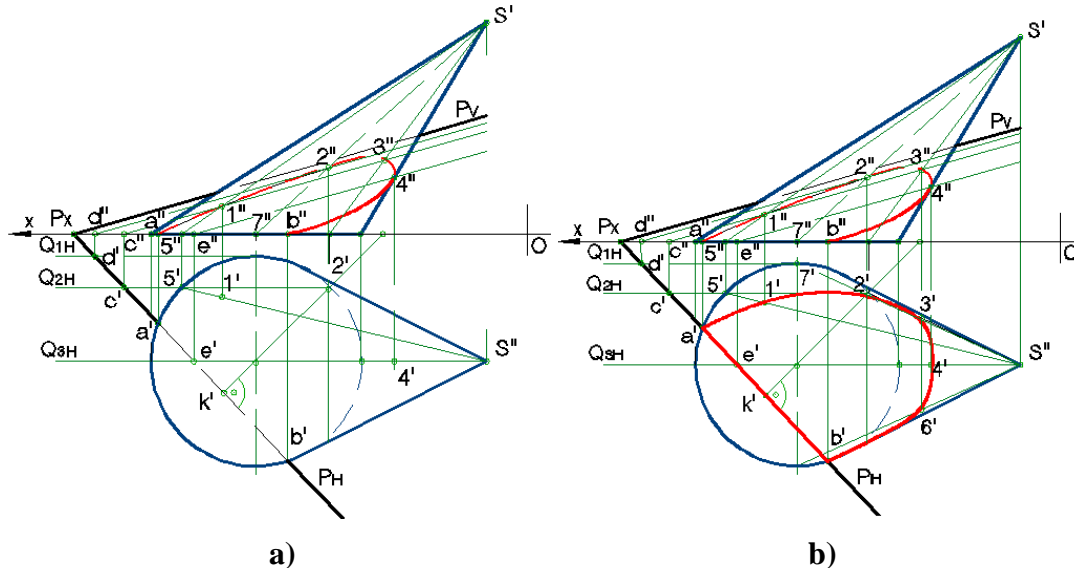**Figure 5**

a)   **b)**

Figure 6

The horizontal H projection of the line of intersection of the surface of the cone in the general situation and the plane in the general situation is performed based on the algorithm presented in Figure 3b. The points identified in the frontal V projection are marked as 1', 2', 3', 4', 5', 6', 7', and the points identified in both projections are combined using a ruler as shown in Figure 6b.

Thus, determining the intersection lines of the plane in the general situation with the surface of the cone in the general situation is carried out in several stages. In the future, in the search for a solution to such engineering issues, explanation through drawings using the AvtoCAD program will help to eliminate the difficulties that arise in the lessons and serve as a demonstration of the lessons.

References:

1. Горячкина, А. Ю., Корягина, О. М., Горюнова, И.А. Онлайнобучение графическим дисциплинам на национальной платформе открытого образования // Главный механик. 2020. № 11. С. 42–48.

2. Ismatullaev R. Chizma geometriya. Toshkent, 2003, -111 b.

3. Xorunov R. Chizma geometriya kursi. -Toshkent: O'qituvchi, 1995.- 230 b.

4. Муродов Ш.К.ва бошқалар, Чизма геометрия, Олий ўкув юртлари учун дарслик, "Иқтисод-молия" нашриёти Тошкент-2008.

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5. В.О. Гордон и другие "Курс начертательной геометрии" Учеб. пособие. Москва "Наука" 1988. 272с

6. Akramovna, O. N. (2021). Scientific basis for increasing the efficiency of cultivation of crops on the lands of farms and the population. ACADEMICIA: AN INTERNATIONAL MULTIDISCIPLINARY RESEARCH JOURNAL, 11(2), 1297-1304.

7. Ochilova, N. A. ECONOMIC PERFORMANCE OF DEHKAN FARMS IN KASHKADARYA REGION. GWALIOR MANAGEMENT ACADEMY, 117.

8. Akramovna, O. N. (2021). Management of Farming and Horticultureand their Economic Efficiency. Academic Journal of Digital Economics and Stability, 582-586.

9. Mirzakulovna, I. M., & Safarovich, K. Z. (2022). Dependence of Birth Type on Live Weight and Body Dimensions in Black Korakola Lambs. *Periodica Journal of Modern Philosophy, Social Sciences and Humanities*, *11*, 77-80.

10. Bazarova, D., & Klichev, Z. (2022). Maturity Characteristics of Karakul Breed Lambs. *INTERNATIONAL JOURNAL OF BIOLOGICAL ENGINEERING AND AGRICULTURE*, *1*(4), 23-24.

11. Khamdamovna, J. S., & Klichev, Z. (2022). CORRECT ORGANIZATION OF DRIVING IN KARAKUL SUBJECTS. *Galaxy International Interdisciplinary Research Journal*, *10*(5), 6-8.

12. Popova, V. V., & Safarovich, K. Z. (2022). Feeding Level of Ewets in Different Physiological Conditions. *International Journal on Orange Technologies*, *4*(3), 71-74.