





BASIC SURFACES FOR ENGINEERING

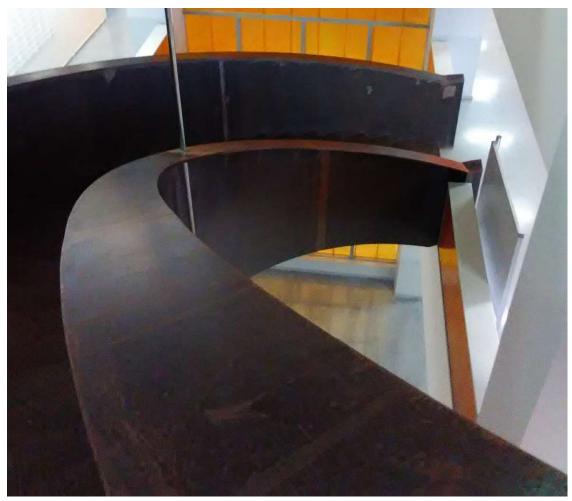


Figure 00. Main stairs of Engineering School of Bilbao II. Picture made by the authors, 2018.

1. Test of Surfaces: Basic concepts







Instructions

The questions presented are multiple choice questions, with only one correct answer.

The solutions are at the end of the document.









Surfaces. Basic concepts test

Which of the following statements is correct:

- 1. Regarding the concept of surface and body:
 - a. Surface is the body formed by generatrices, while the body can also be formed by meridians and parallels.
 - b. Surface and body are equivalent concepts, with the only difference that the body has a lower base.
 - c. The surface is not thick and can be unlimited, while the body has a limited extension and therefore a volume.
 - d. Body means various surfaces in different arrangements.
- 2. Regarding the generation of ruled surfaces:
 - a. They are formed by lines that rotate supported on a vertex.
 - b. They are generated by lines, called generatrix, that move in space according to a law of motion.
 - c. They are non-curved surfaces.
 - d. They are generated by a line, called guideline, that moves in space according to a law of motion.
- 3. Regarding radiated surfaces:
 - a. The sphere is a radiated surface, and therefore, we can limit its radius.
 - b. The sphere is a radiated surface, although we narrow its diameter.
 - c. The sphere is not a radiated surface, because it does not have generatrix that pass through the center.
 - d. The sphere is not a radiated surface, because its generatrix does not pass through a fixed point.
- 4. Regarding ruled surfaces:
 - a. The sphere is a ruled surface, and therefore, we can limit it.
 - b. The sphere is not a ruled surface, because it has no linear dimensions.
 - c. The sphere is not a ruled surface, because its generatrix is not a straight line.
 - d. The sphere is not a ruled surface, because its guideline is not a straight line.







- 5. On surfaces, when the general basic surface is delimited by cutting planes, it is called:
 - a. Section.
 - b. Trunk.
 - c. Volume.
 - d. Intersecting surface.

6. The sphere:

- a. It is a surface of simple curvature, which is obtained by revolution.
- b. It is a double curvature surface, which is obtained by revolution.
- c. It is a double curvature surface, obtained by revolution with respect to two axes.
- d. It is a triple curvature surface, which is obtained by revolution.

7. An irregular straight prism:

- a. The height forms an angle with the base, giving rise to generatrix of different length.
- b. The axis forms any angle, and the base has edges of different lengths.
- c. The axis and height are not parallel.
- d. The axis is perpendicular to the base, and the base has edges of different lengths.
- 8. An oblique cylinder not of revolution:
 - a. The height does not rotate about the axis, and forms an angle with the base.
 - b. It is generated by an equidistant rotation of the generatrix with respect to the axis, but less than 360°.
 - c. The rotation about its axis of symmetry is erratic.
 - d. The generatrix does not rotate with respect to the axis, which forms an angle with the base.









- 9. An oblique cylinder with a circular base resting on the horizontal plane of projection:
 - a. It is a cylinder of revolution.
 - b. It is not a cylinder of revolution.
 - c. It will be revolution or not revolution depending on the angle of the axis with respect to the base.
 - d. With a circular base it is always of revolution.
- 10. A straight cone with a circular base resting on the vertical plane of projection:
 - a. The axis does not pass through the center of the base.
 - b. The height passes through the center of the base, but only in the vertical projection plane.
 - c. It is not of revolution.
 - d. Their generatrixes are tangent to the base in the horizontal projection.







Solutions for surfaces basic concepts testing

1c, 2b, 3d, 4c, 5b, 6b, 7d, 8d, 9b, 10d





