

## BASIC SURFACES FOR ENGINEERING



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

## 2. Exercises of surfaces representation

## 2. REPRESENTATION EXERCISES OF SURFACES

See the corresponding section in the teaching guide to evaluate the level reached in the performance of the exercises.

### E. STATEMENT

**E.1.** Represent the prism considering the following data:

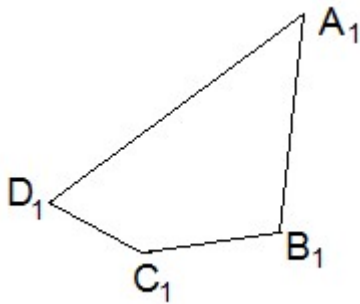


Figure 2.1. Base of the irregular prism (horizontal projection). (Image made with Solid Edge).

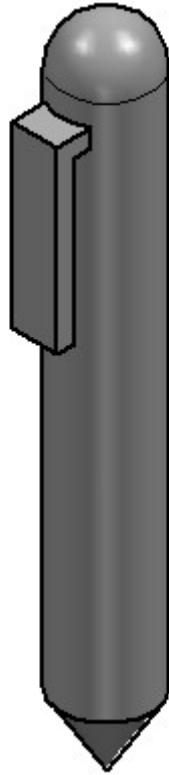
- Its an oblique irregular prism.
- The base is on the horizontal projection plane, and its horizontal projection is given in Figure 2.1.
- The edges are frontal lines that form angle with the base.
- The height of the prism is **h**.

Indicate the True Dimension of the base and of one of the edges.

**E.2.** Represent the upright cone considering the following data:

- It has diameter =  $\emptyset$ .
- Its base is parallel to the vertical projection plane.
- Its height is **h**.

**E.3.** Represent the pointer in Figure 2.2. considering the following data:



- The point is an upright revolution cone, height  $D$  its diameter and  $h_c$  its height.
- The body is an upright cylinder, with the base diameter equal to that of the cone ( $D$ ), and height  $L$ .
- The upper end is a hemisphere of  $R=D/2$ .
- There are two prismatic structures to hold the object, with the same width  $g$ : one of them is horizontal, located at a height of  $L_c$  from the base of the cone, and that has a length of  $L_{p1}$  measured from the axis of the cylinder: the other is vertical, and it is connected to the previous one, with the same width. Its length is  $L_{p2}$ .

Figure 2.2. Pointer composed of several basic surfaces. (Image made with Solid Edge)

## S. SOLUTIONS

S.1. Represent the prism. Indicate the True Dimension of the base and of one of the edges.

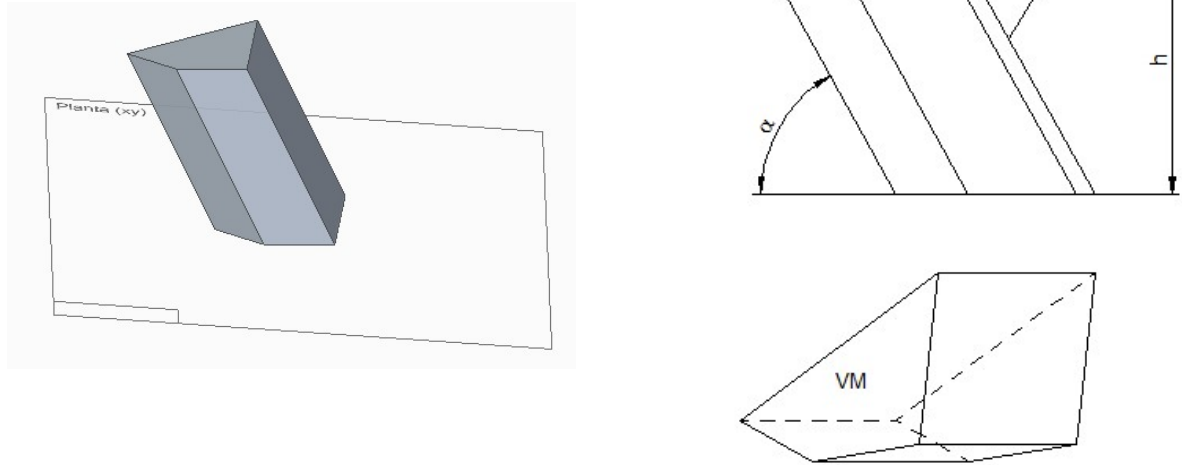


Figure 2.3. Representation of an irregular oblique prism (Image made with Solid Edge). The symmetric representation is also valid.

S.2. Upright cone, with base parallel to the vertical projection plane.

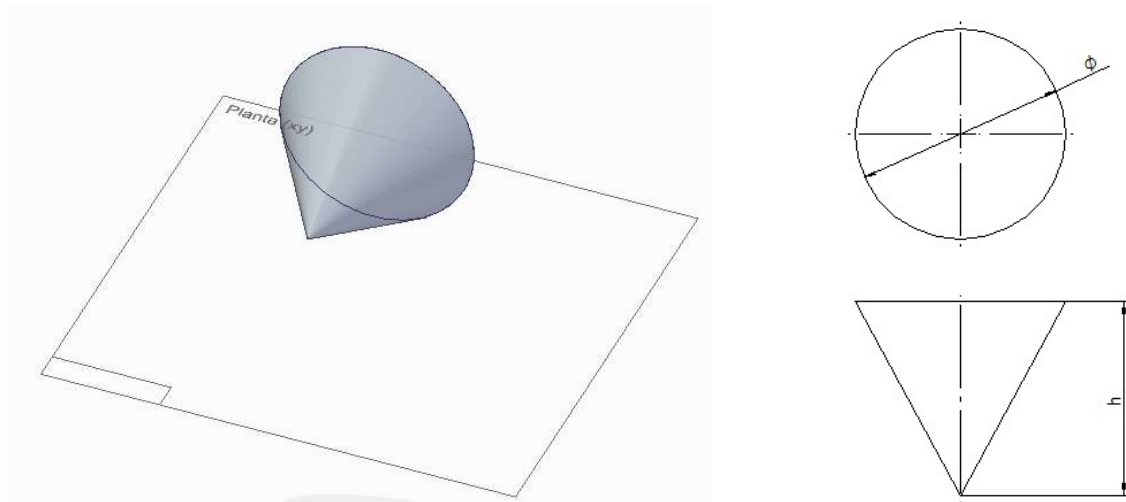


Figure 2.4. Representation of an upright cone with base on the vertical projection plane (Image made with Solid Edge)

S. 3. Pointer.

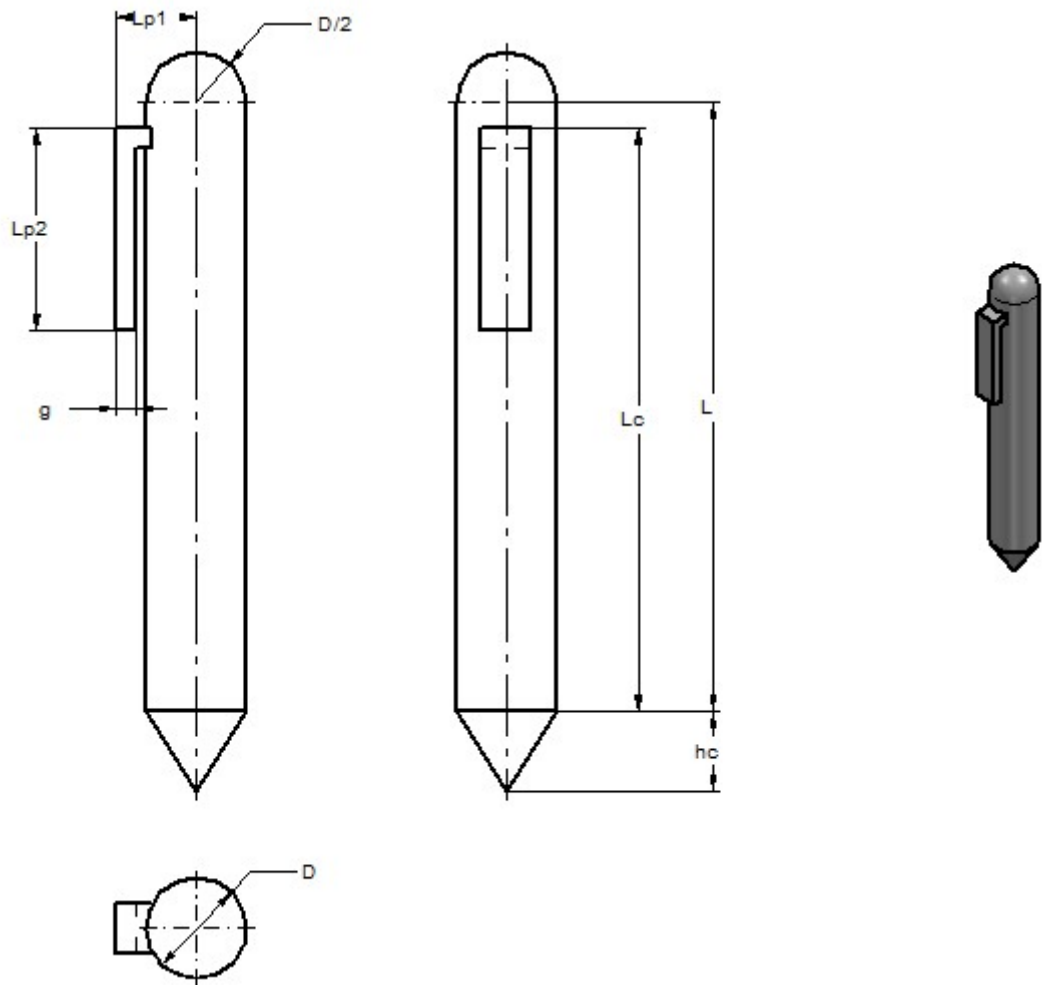


Figure 2.5. Pointer (Image made with Solid Edge)

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