

## BASIC SURFACES FOR ENGINEERING

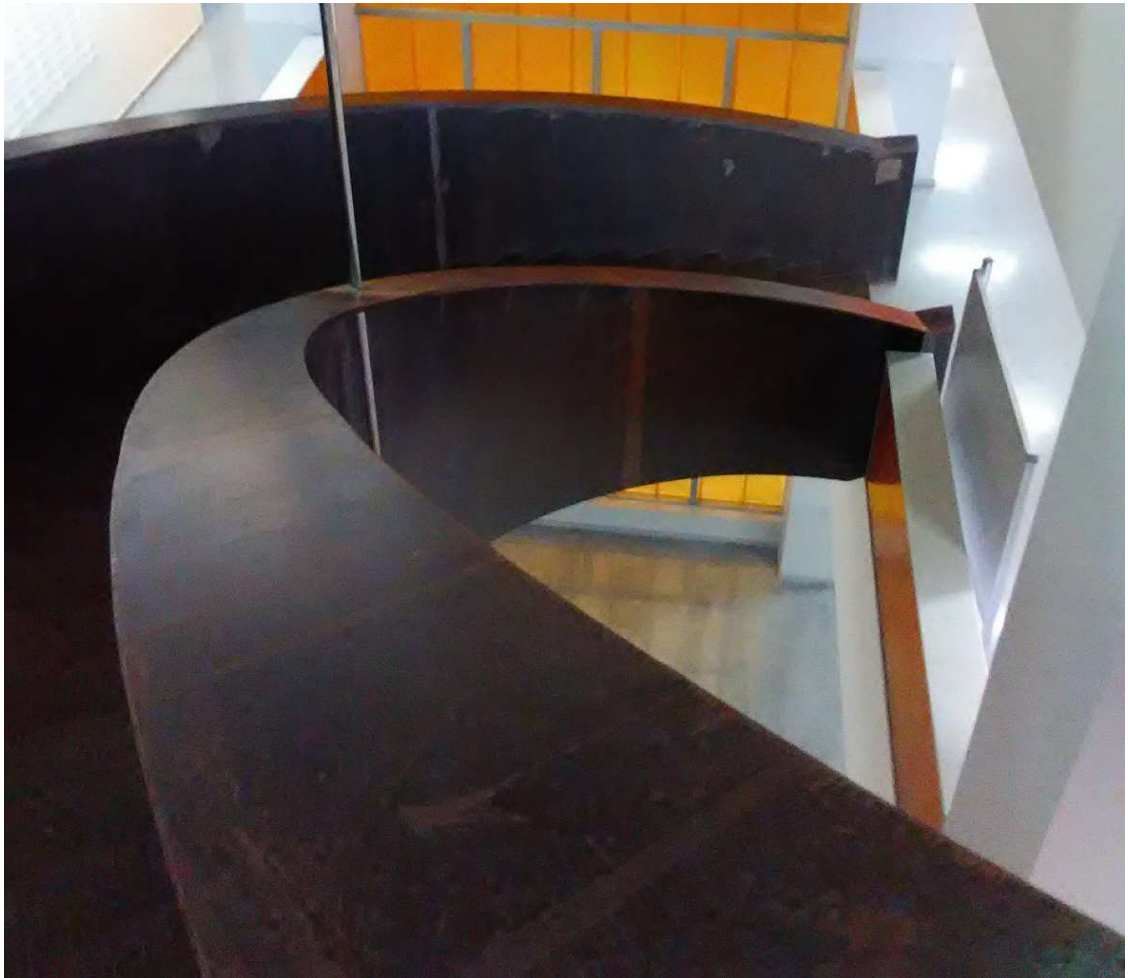


Figure 00. Main stairs of Engineering School of Bilbao II. Picture made by the authors, 2018.

### 4. Surface development and sections transformed exercises

## 4. SURFACE DEVELOPMENT AND SECTIONS TRANSFORMED EXERCISES

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

### E. STATEMENT

**E.1.** Perform the development of the straight cone shown below:

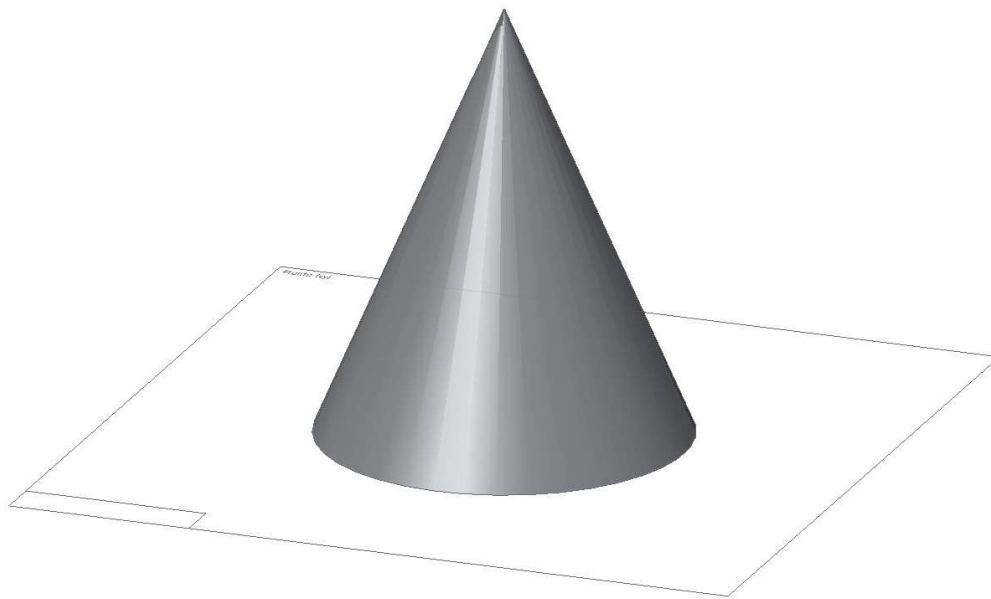


Figure 4.1. a. Straight cone (Image made with Solid Edge).

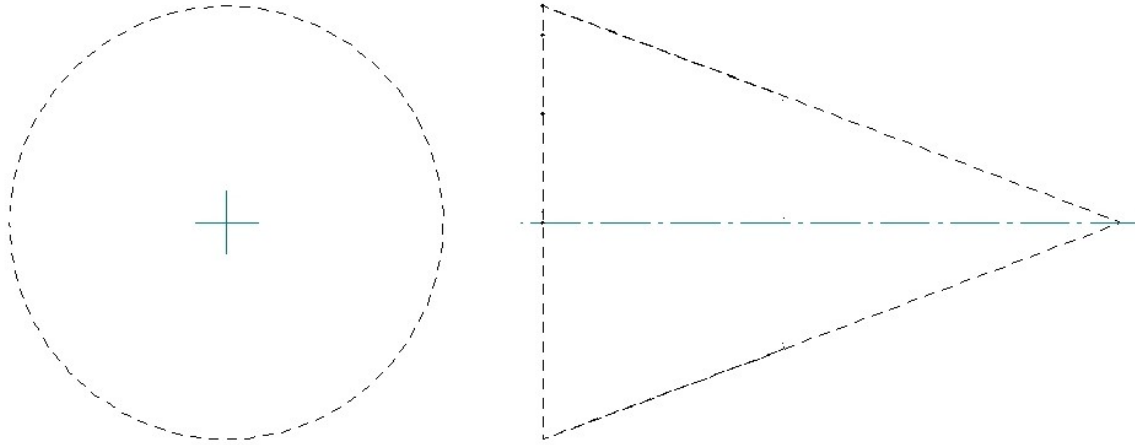


Figure 4.1. b. Straight cone to develop (Image made with Solid Edge).

**E.2.** Represent Carry out the development of the pyramid shown below:

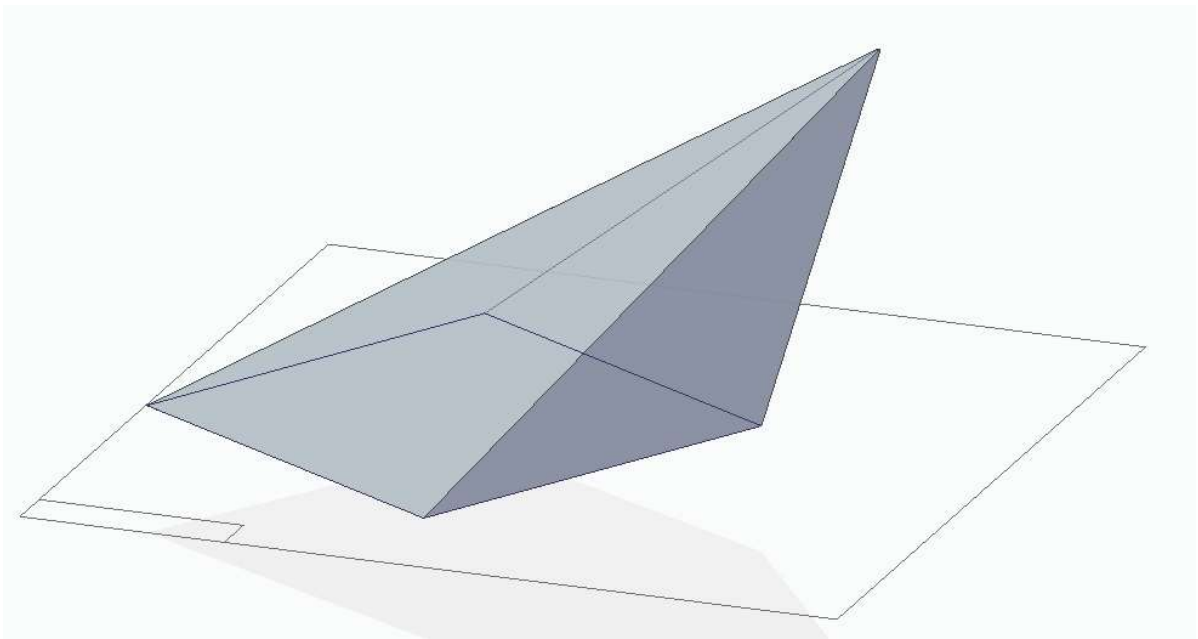


Figure 4.2. a. Oblique Pyramid (Image made with Solid Edge).

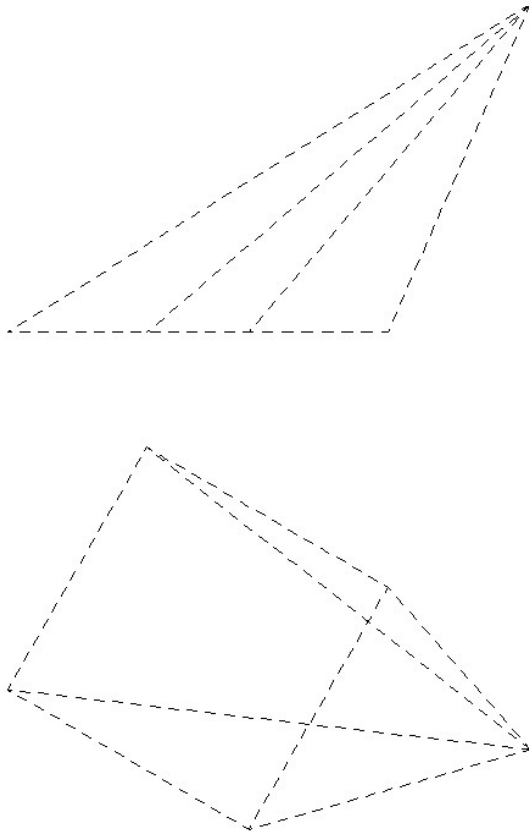


Figure 4.2. b. Oblique Pyramid to be developed (Image made with Solid Edge).

**E.3.** Carry out the development of the oblique cylinder shown below:

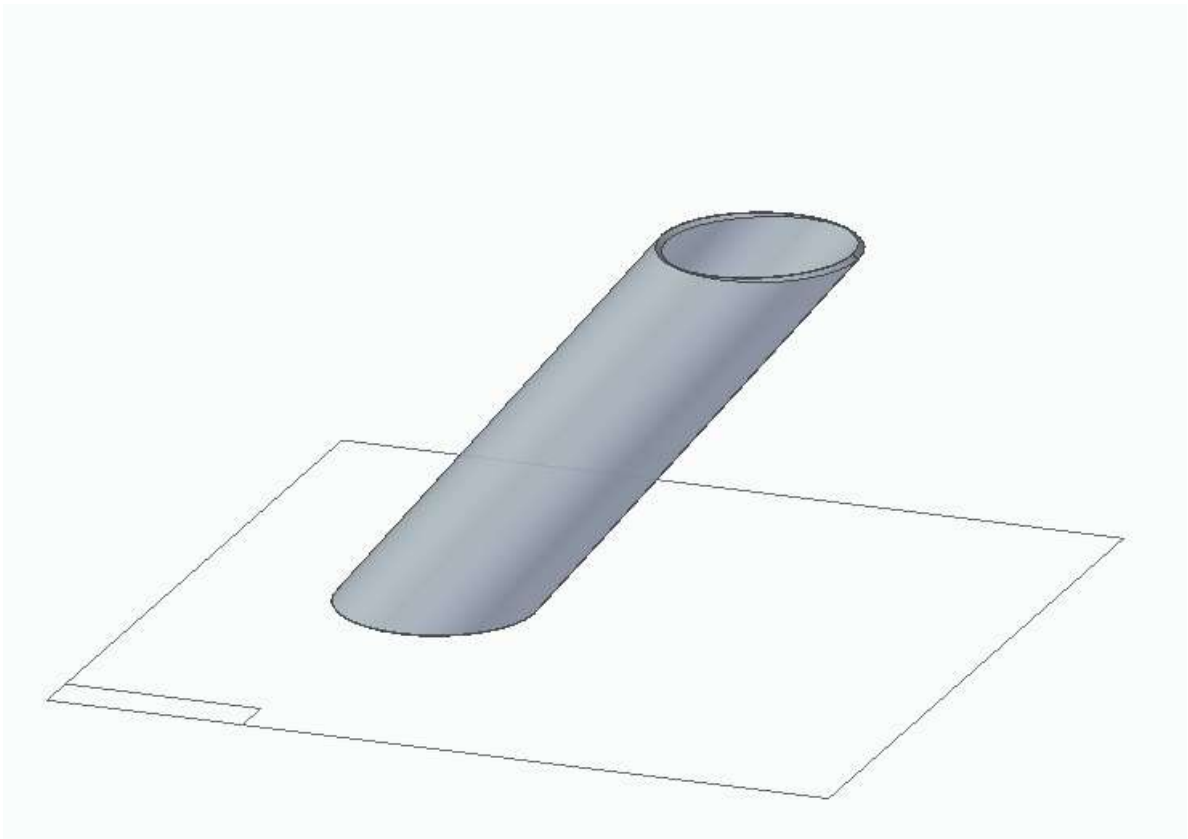


Figure 4.3. a. Oblique Cylinder (Image made with Solid Edge).

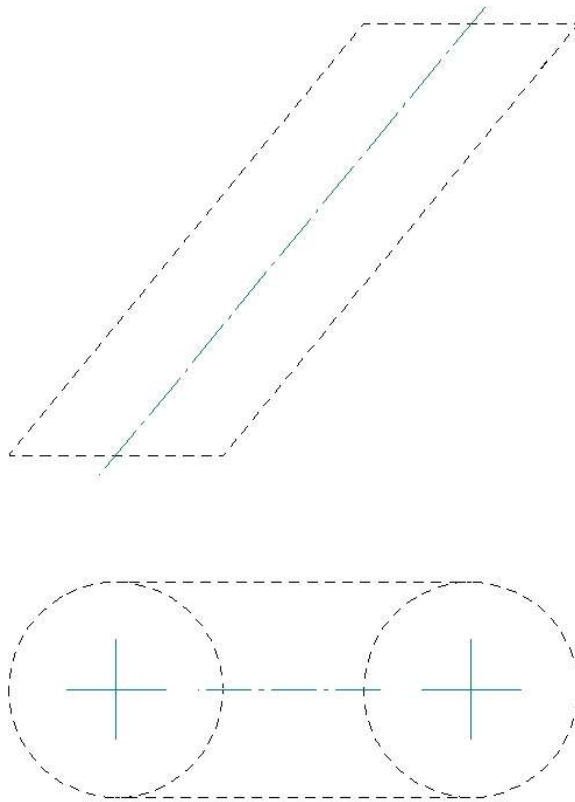


Figure 4.3. b. Oblique Cylinder to be developed (Image made with Solid Edge).

**E.4.** Carry out the development of the straight prism shown below:

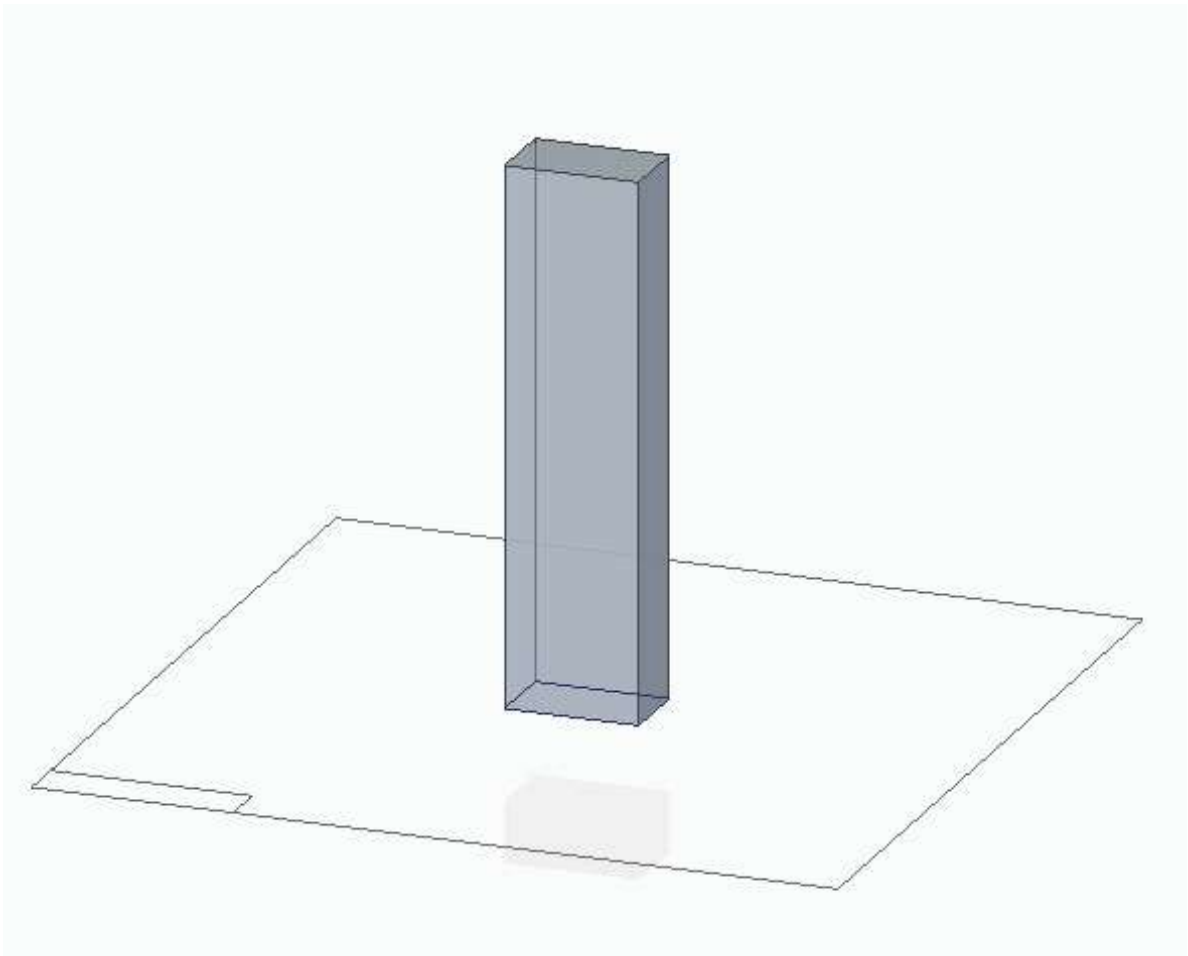


Figure 4.4. a. Straight Prism (Image made with Solid Edge).





Figure 4.4. b. Straight Prism to be developed (Image made with Solid Edge).

## S. SOLUTIONS

S.1. Perform the development of the straight cone shown below:

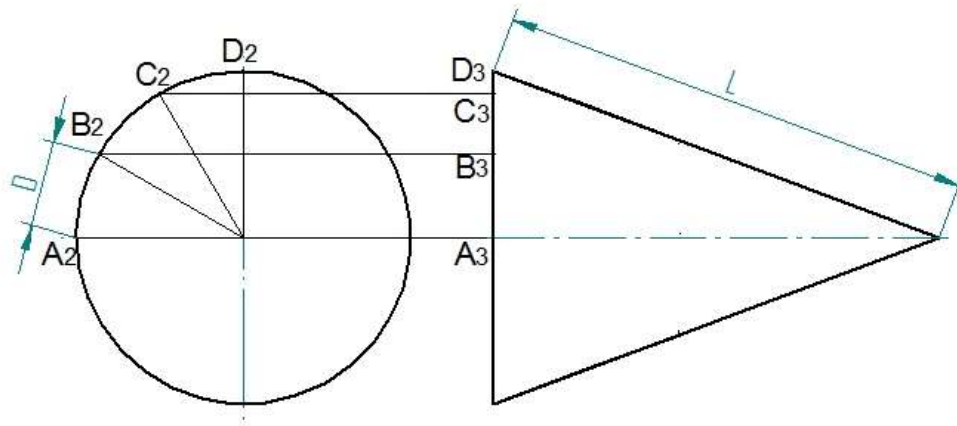


Figure 4.5. a. Favourable views to calculate the development of a straight cone (Image made with Solid Edge).

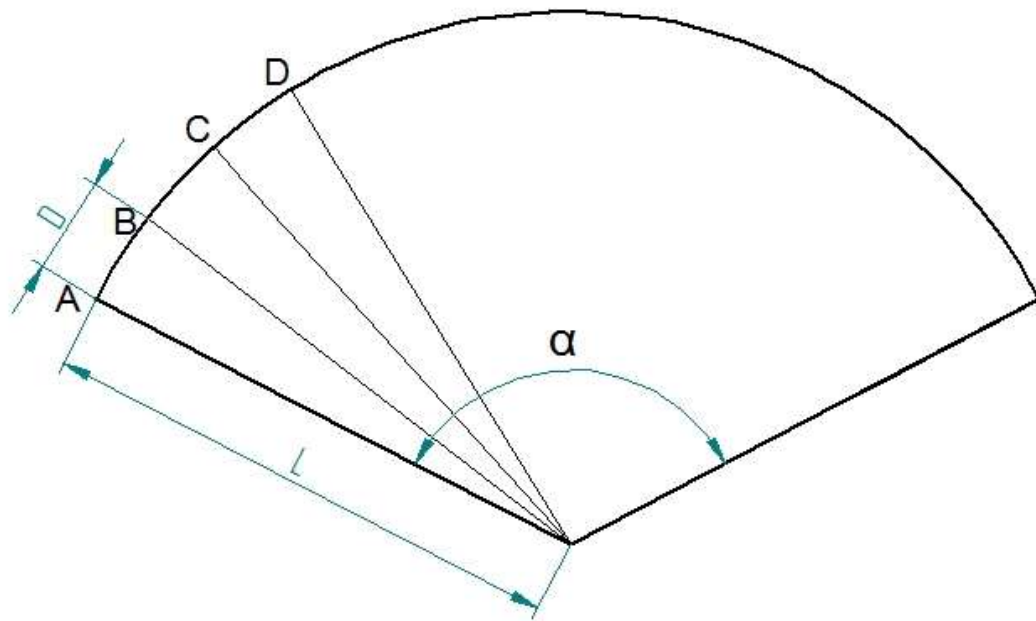


Figure 4.5. b. Development of a straight cone (Image made with Solid Edge).

$$\text{Where } \alpha = 360 \cdot r_{\text{base}} / L$$

S.2. Carry out the development of the oblique pyramid:

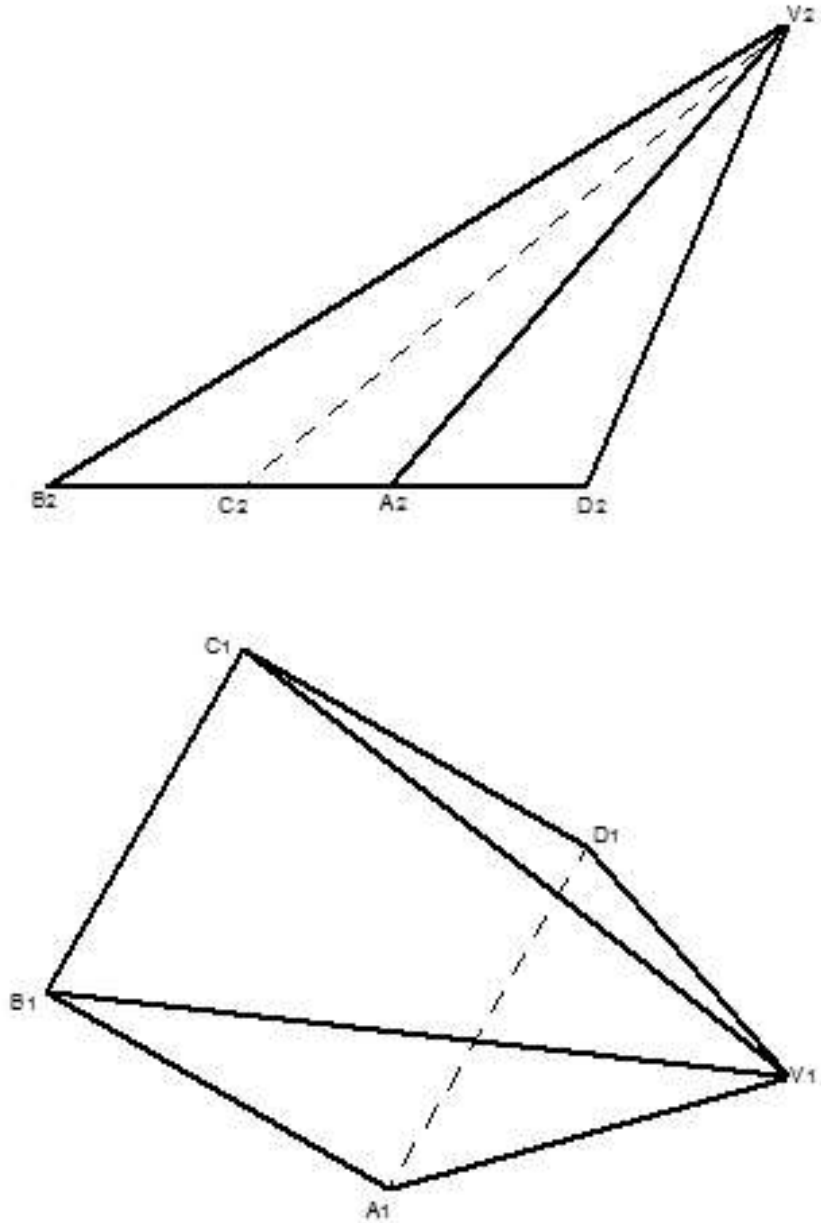


Figure 4.6. a. Views of an oblique pyramid (Image made with Solid Edge).

To make the development, look at the case of the oblique cone developed in section 4.1.2.

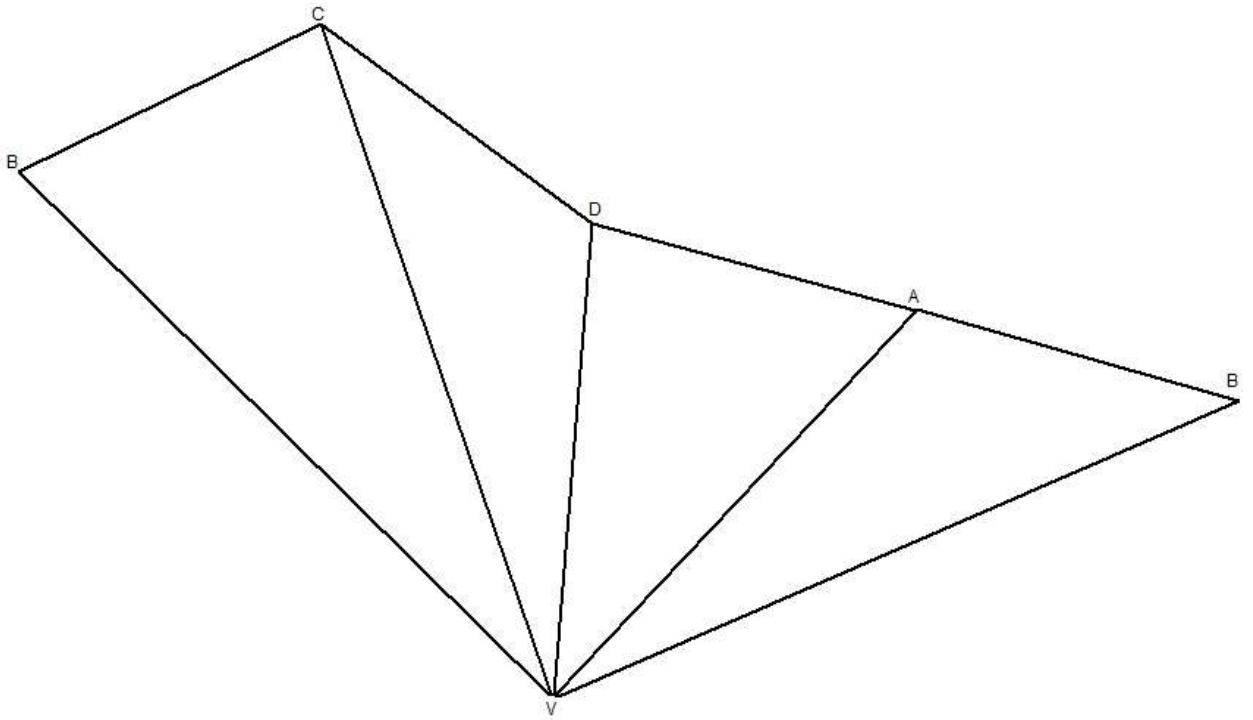


Figure 4.6. b. Development of the oblique pyramid (Image made with Solid Edge).

**S.3.** Carry out the development of the oblique cylinder:

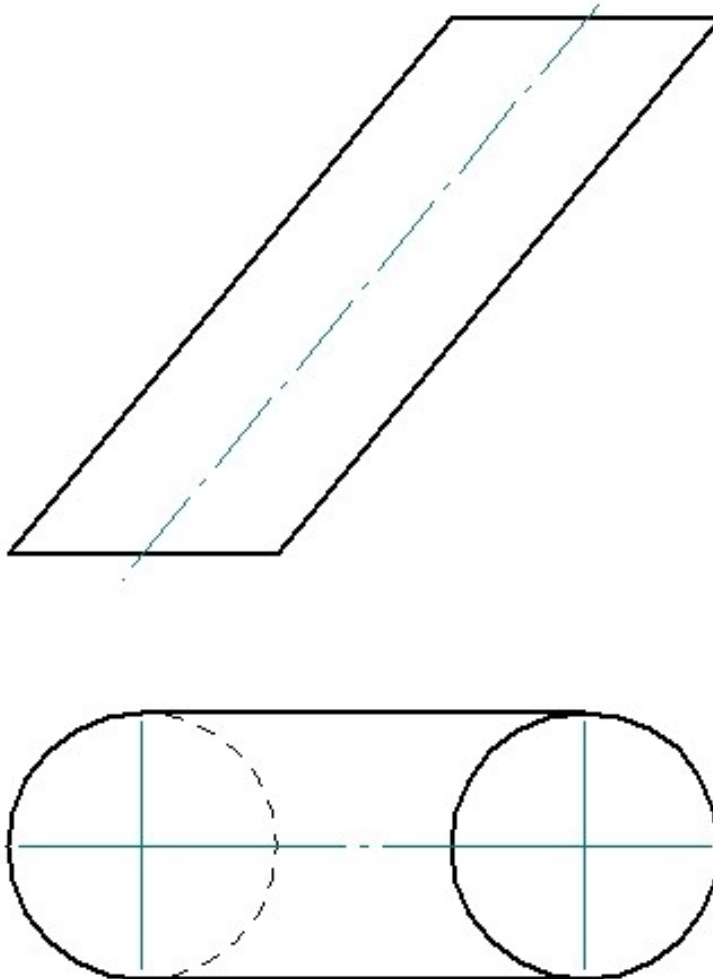


Figure 4.7. a. Views of an oblique cylinder (Image made with Solid Edge).

To carry out the development look at the case of the oblique cone developed in section 4.1.3.

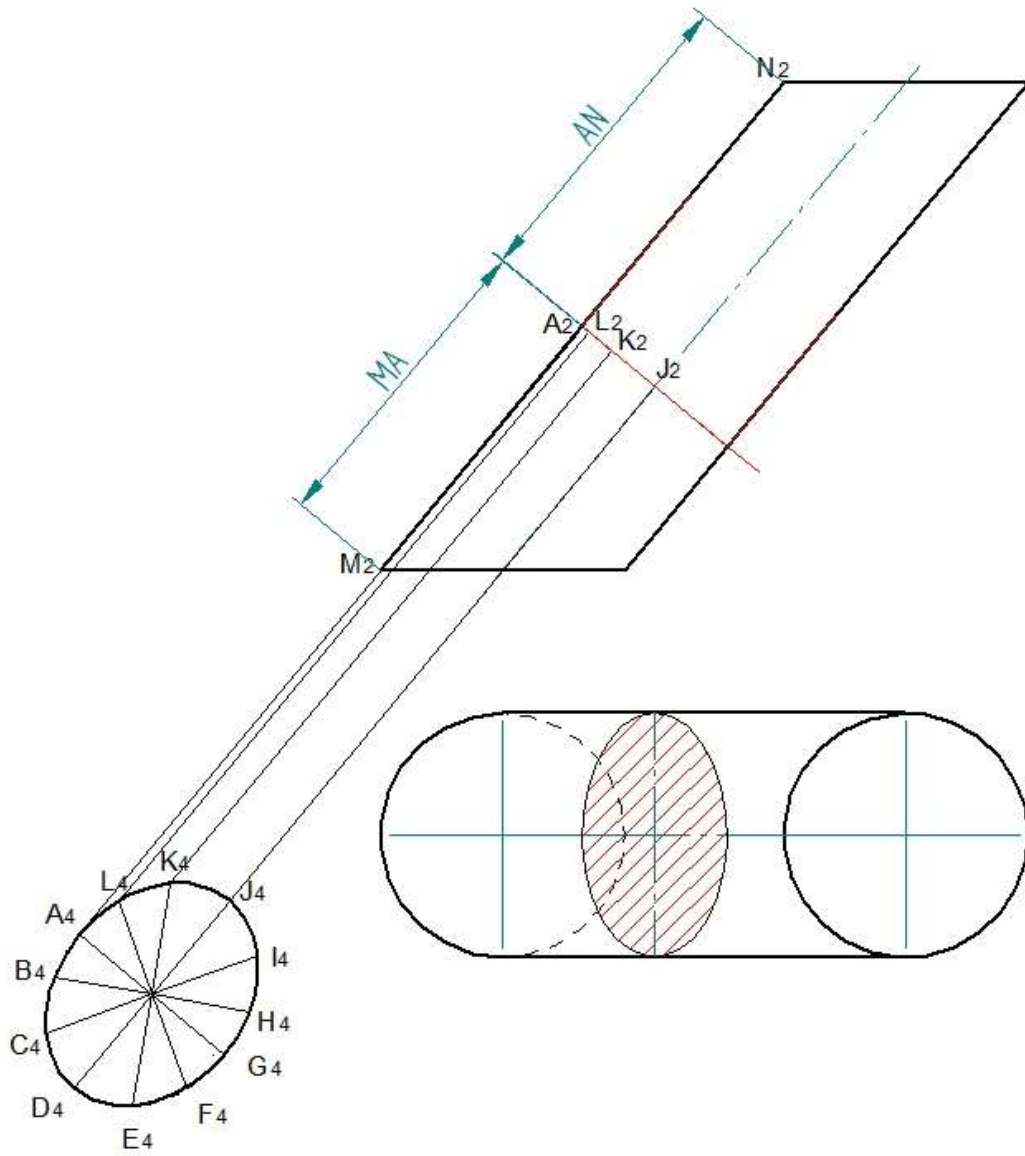


Figure 4.7. b. Views of the oblique cylinder (Image made with Solid Edge).

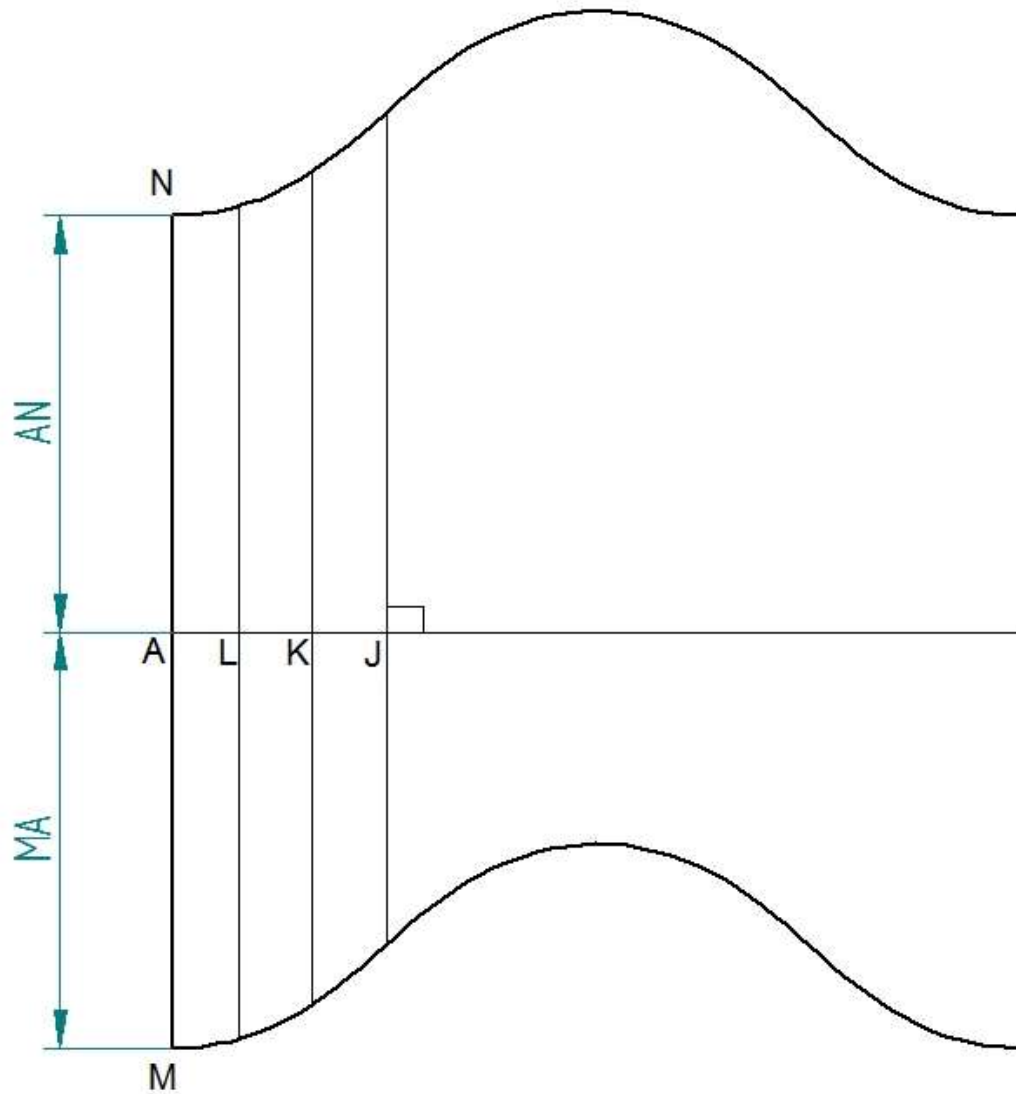


Figure 4.7. c. Development of the oblique cylinder (Image made with Solid Edge).

S.4. Carry out the development of the straight prism:

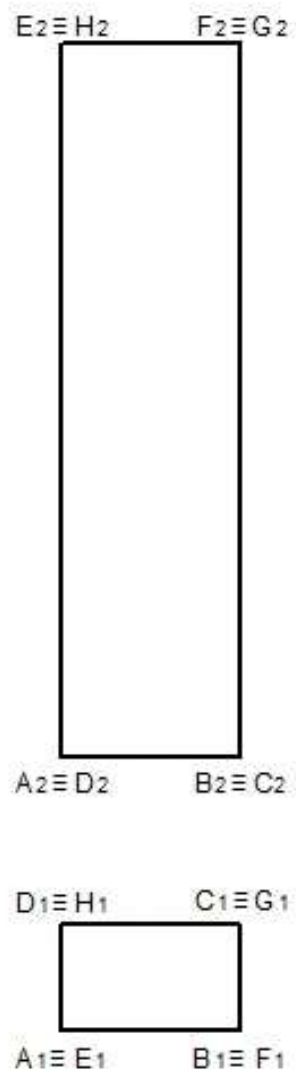


Figure 4.8. a. Views of a straight prism (Image made with Solid Edge).



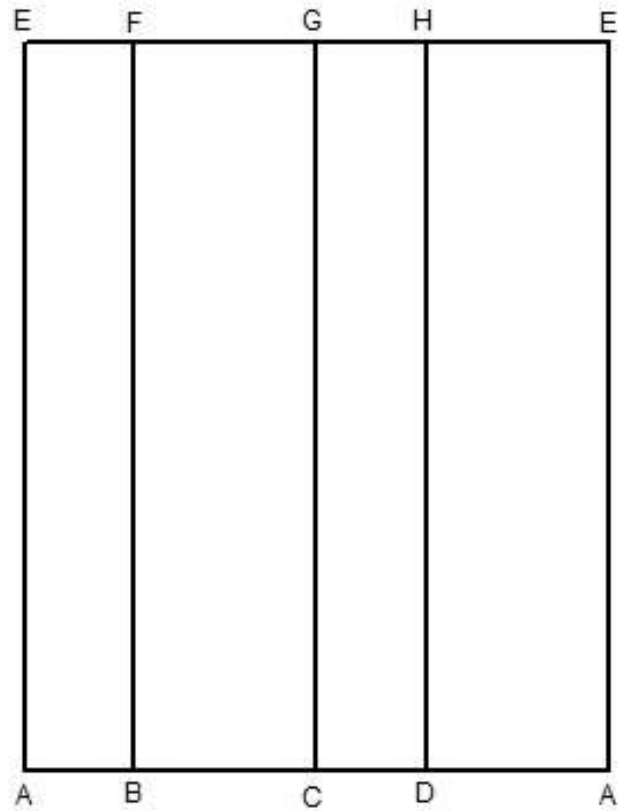


Figure 4.8. b. Development of a straight prism (Image made with Solid Edge).