Test – Cross-Sections and Thin-Walled Cross-Sections

Given the cross-section in figure 1 (dimensions in mm), determine:

1. The position of the centroid;

2. The central axes of inertia and central moments of inertia;
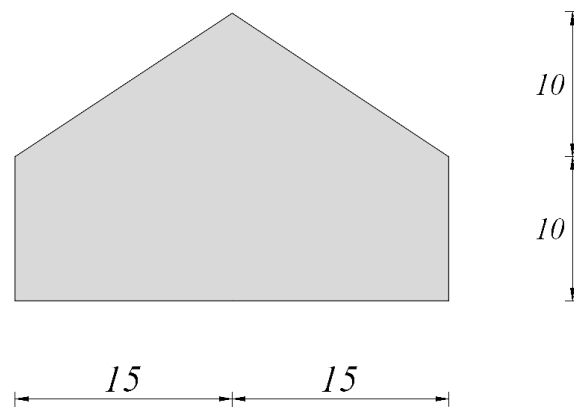
3. The position of the central core of inertia;

Figure 1 (Exercise 1)

Given the thin-walled cross-section in figure 2 (dimensions in mm) with thickness equal to 1 mm, determine:

1. The position of the centroid;

2. The central axes of inertia and central moments of inertia;

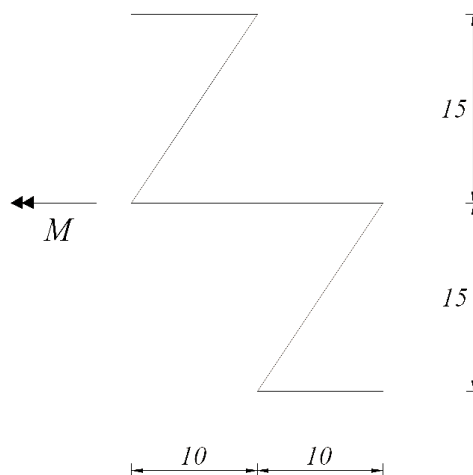3. The maximum bending moment M applicable by hypothesis $\sigma_{adm} = 255$ MPa;

Figure 2 (Exercise 2)

Given the thin-walled cross-section in figure 3 (dimensions in mm) with thickness equal to 1 mm, determine:

1. The position of the centroid;

2. The central axes of inertia and central moments of inertia;

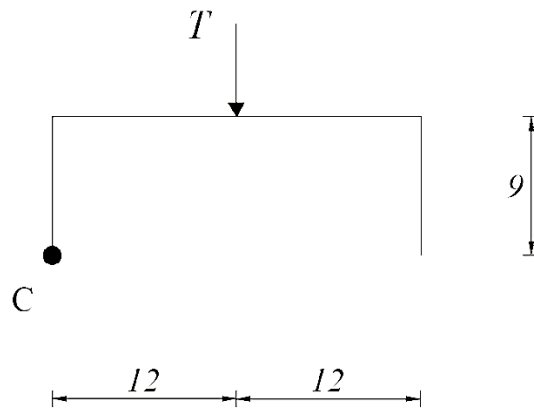3. The stress τ_z in C due to shear force T = 2000 N;

Figure 3 (Exercise 3)

Given the cross-section in figure 4 (dimensions in mm), determine:

1. The position of the centroid;

2. The central axes of inertia and central moments of inertia;

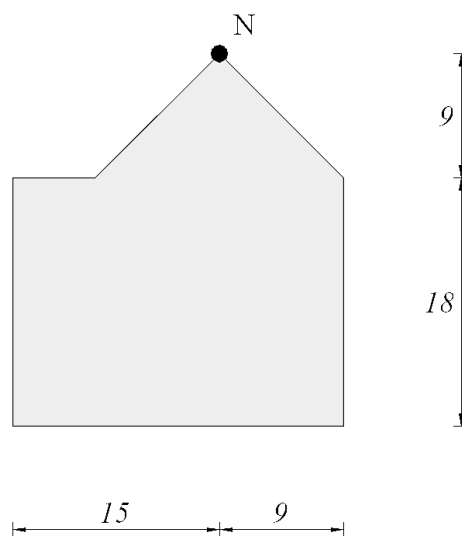3. The maximum axial force applicable in N considering that σ_{adm} = 255 MPa (steel);

Figure 4 (Exercise 4)