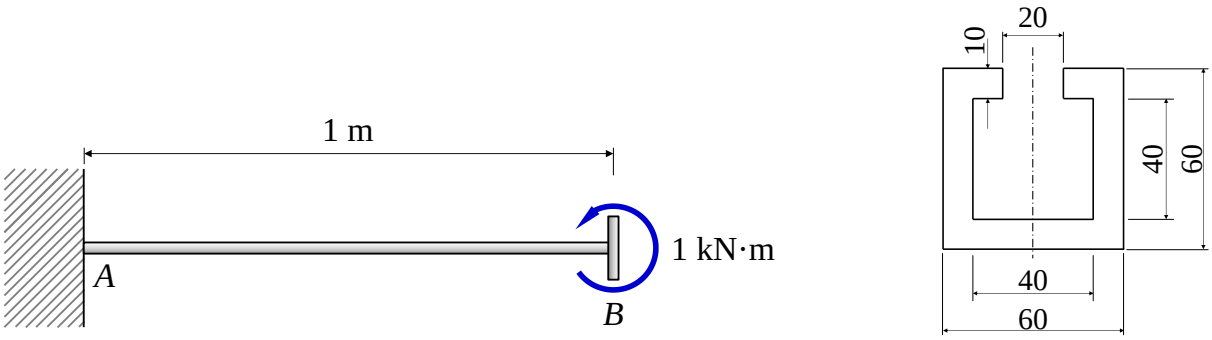
Example 2.2.4

The cantilever beam in Figure 1a is made of aluminium alloy with E = 70 GPa and its cross-section is shown in Figure 1b (cross-section dimensions in mm). Calculate the radius of curvature of the neutral line of the beam when it is subjected to a pure bending moment of 1 kN·m as shown.



(a) (b)

Figure 1: (a) A cantilever beam subjected to pure bending, and (b) dimensions of its cross-section in millimetres.