Example 2.1.2

A bar of length 2.0 m is made of a structural steel having the stress-strain diagram shown in Figure 1. The yield stress of the steel is 250 MPa and the slope of the initial linear part of the stress-strain curve (modulus of elasticity) is 200 GPa. The bar is loaded axially until it elongates 6.5 mm, and then the load is removed. How does the final length of the bar compare with its original length?

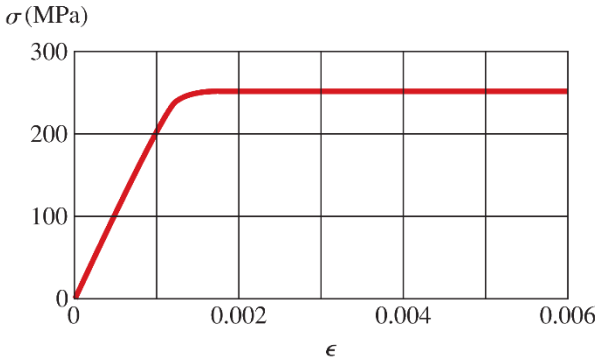

Figure 1: Stress-strain curve.