6.37 We are asked to compute the true strain that results from the application of a true stress of 600 MPa (87,000 psi); other true stress-strain data are also given. It first becomes necessary to solve for n in Equation 6.19. Taking logarithms of this expression and after rearrangement we have

$$n = \frac{\log \sigma_T - \log K}{\log \varepsilon_T}$$

$$= \frac{\log (500 \ \text{MPa}) - \log (825 \ \text{MPa})}{\log (0.16)} = 0.273$$

Expressing ε_T as the dependent variable (Equation 6.19), and then solving for its value from the data stipulated in the problem statement, leads to

$$\varepsilon_T = \left(\frac{\sigma_T}{K}\right)^{1/n} = \left(\frac{600 \ \text{MPa}}{825 \ \text{MPa}}\right)^{1/0.273} = 0.311$$