

Homework 8.0

Carefully review chapter 8 lecture slides and, if time allows, read textbook sections (Askeland 8.1-8.9) and give an honor statement confirming the reading

Homework 8.1

Two previously undeformed samples of the same metal are going through cold rolling. Sample A has a circular cross-section and its diameter reduces from 0.6 inch to 0.4 inch, while sample B has rectangular cross-section and its dimension changes from 4 x 5 inch² to 2 x 6 inch². Which sample is expected to have higher yield strength and tensile strength? Which sample is expected to have higher ductility? Why?

Sample A percentage area reduction

$$RA\% = \frac{?}{??} \times 100\% = 55.6\%$$

Sample B percentage area reduction

$$RA\% = \frac{?}{??} \times 100\% = 40.0\%$$

Because sample A experience greater RA% or percentage of cold-work, it would have higher yield strength and tensile strength.

Meanwhile, sample B, due to its lower RA%, will have higher ductility