

Problem 1

It is noticed that a 70 ft steel cable lengthens by a total of 2 inches when subjected to the weight of the load. What is the average axial strain in the elevator cable?



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$$\epsilon = \frac{\delta}{L} = \frac{\frac{2}{12} \text{ ft}}{70 \text{ ft}}$$

$$\epsilon = .002381$$

$$\boxed{\epsilon = 2381 \mu}$$