

Answer on Question #46446, Physics, Other

The tensile stress and tensile strain of a wire are $6.09 \cdot 10^7 \text{ Nm}^{-2}$ and $3 \cdot 10^{-4}$ respectively. determine young's modulus of the wire

By definition, Young's modulus:

$$E = \frac{\sigma}{\epsilon} = \frac{6.09 \cdot 10^7 \frac{\text{N}}{\text{m}^2}}{3 \cdot 10^{-4}} = 203 \frac{\text{GN}}{\text{m}^2}$$

Answer: the young's modulus of the wire $203 \frac{\text{GN}}{\text{m}^2}$