

$$\begin{array}{lcl}
 \rho(\sigma) = 2K & 50 = 2K & \\
 E = 80N & 50 = 2K \times 0.5 & \Rightarrow K = 50N/m \\
 & 0.5 & 0.5
 \end{array}$$

Shaded by $5\text{ cm} \Rightarrow 0.5\text{ m}$

How much to stretch by an additional 10 cm ?

$$\begin{array}{lcl}
 \rho(\sigma) = 100N & W = 5 \times 100 & \\
 50 \times 10^{-2} & = 5 \times 100 = 500 & \Rightarrow \frac{500}{2} = 250
 \end{array}$$