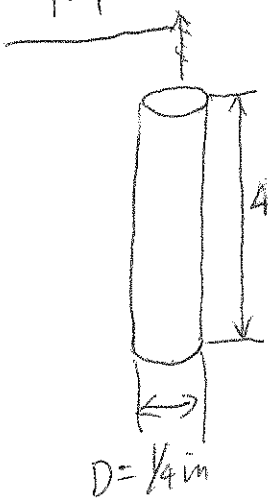
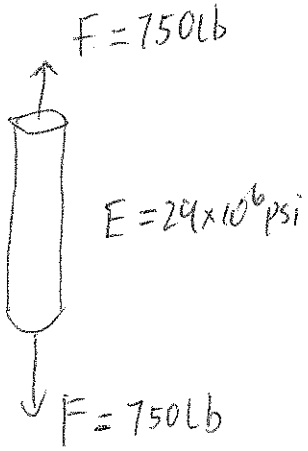
9.1 Solution





Elongation of wire ?

normal stress ?

Crossection $A = \frac{1}{4}\pi D^2$

normal stress

$$\sigma = \frac{F}{A} = \frac{750\,lb}{\pi (1/4\,in)^2/4} = 1.53 \times 10^4\ psi$$

~~ΔL~~

Elongation

$$\Delta L = \frac{\sigma}{E} L = \frac{1.53 \times 10^4\ psi}{29 \times 10^6\ psi} \cdot 4.8' = 0.03\ in$$