

Young's Modulus

- Spring $F = -k x$ [demo]
 - What happens to “k” if cut spring in half?
 - A) decreases B) same C) increases
- k is inversely proportional to length!
- Define
 - Strain = $\Delta L / L$
 - Stress = F/A
- Now
 - Stress = Y Strain
 - $F/A = Y \Delta L/L$
 - $k = Y A/L$ from $|F| = k x$
- Y (Young's Modulus) independent of L