

1.

$$F = ke$$

$$e = \frac{F}{k}$$

$$= \frac{4.00 \text{ N}}{0.20 \text{ N/cm}}$$

$$= 20 \text{ cm}$$

2.

Get the Spring Constant

$$F = ke$$

$$k = \frac{F}{e} = \frac{5.50}{30.50}$$

$$0.1803 \text{ N/cm}$$

$$e = 14.50 \text{ N}$$

$$80.1803$$

$$85.95 \text{ cm}$$

3.

$$k = \frac{F}{e} = \frac{5.0}{23.0}$$

$$0.2174$$

$$F = ke$$

$$49 \times 0.2174$$

$$10.65 \text{ N}$$

$$4 \text{ Stress} = \frac{\text{Force}}{\text{Area}}$$

$$\frac{680000 \text{ N}}{44 \times 30}$$

$$5151.51 \text{ N/cm}^2$$

$$5. \text{ Stress} = \frac{F}{A}$$

$$= \frac{167.00 \text{ lb}}{24.50 \text{ in}^2}$$

$$6.816 \text{ lb/in}^2$$