Name:

Exam 1 - version A

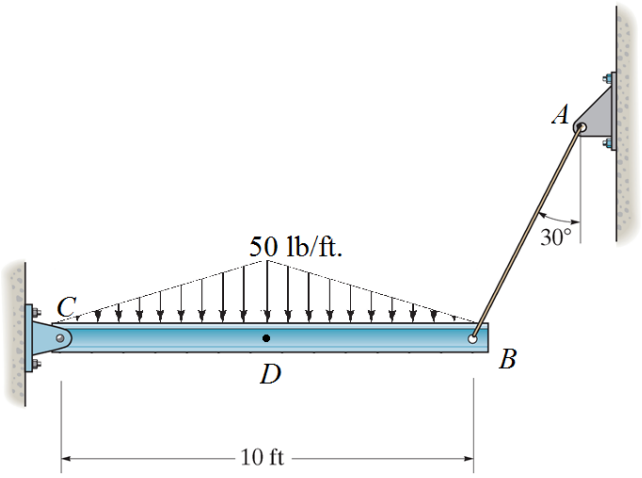

Figure 1: Beam for Problems 1-3

1. (30 pts.) Find the internal forces in the beam at point D.

2. (20 pts.) Find the stress in the cable support if it has a diameter of 1 in.

3. (25 pts.) From the stress-strain diagram shown (for the material the cable is made of), determine the strain in the cable and the displacement in the beam at B.

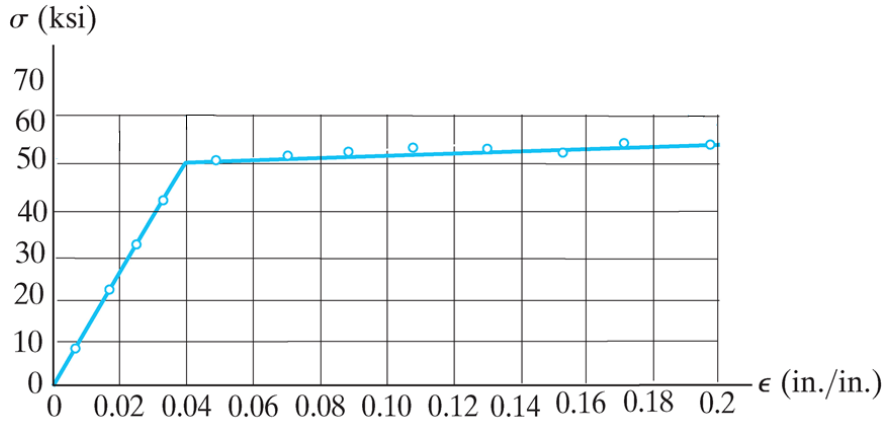

Figure 2: Stress-strain diagram for problem 3

4. (25 pts.) If you are given that the cross-sectional area is $8\,\text{in}^2$, the Poisson's ratio, $\nu = 0.3$ and the Shear Modulus, $G = 481$ ksi, find the average shear strain at D.