

Staple pages together!

Problem 3.1 (continued)

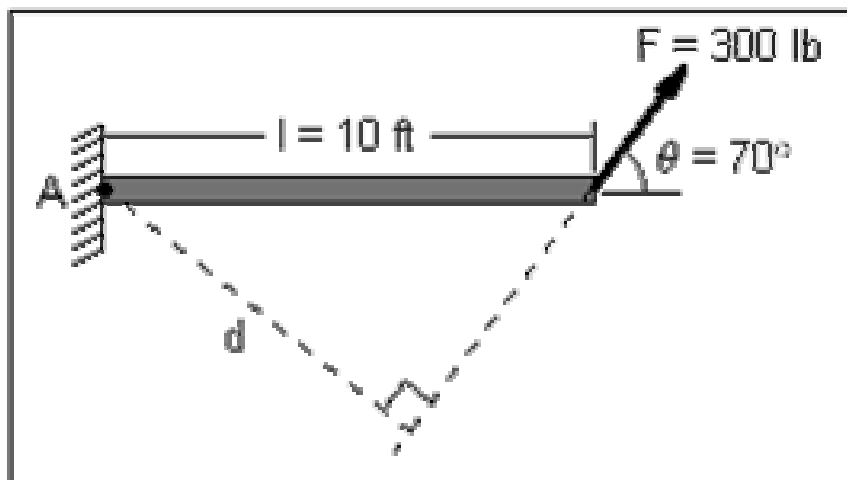
Identify (underline) the problem number. Each new problem **MUST** begin on a new page. Clearly indicate if this is a problem continuing from a previous page.

Given: Structure as illustrated below, with applied external forces.

Required: Determine the moment of  $F$  about point  $A$  at the left end of the beam.

Problem solutions must begin with a statement of the problem, and the required components to determine

Figures should be drawn neatly (with a ruler or handy template that accompanies the text. A sloppy drawing cannot convey information clearly. Neatness Counts!



The solution should begin with an outline of the steps, followed by a systematic approach to the solution.

Solution:

- The moment of the force is equal to the force magnitude times the perpendicular distance,  $d$ , from point  $A$  to the line of action of the force.
- Perpendicular distance,  $d = l \sin \theta = 10 \sin(70^\circ) = 9.4 \text{ ft}$ .
- Moment,  $M_o = Fd = 300(9.40) = 2819 \text{ lb}\cdot\text{ft}$ .

$$\boxed{M_o = 2819 \text{ lb}\cdot\text{ft} \curvearrowright}$$

The solution must be highlighted (inside a box or circle), and contain the correct units (including direction). Watch extraneous digits!