ME 2120 Recitation 4

Questions Taken from 9th Edition

Useful Equations

$$sin\theta = \frac{opposite}{hypotenuse} \qquad cos\theta = \frac{adjacent}{hypotenuse} \qquad tan\theta = \frac{opposite}{adjacent}$$

$$\Delta x = x_f - x_0 \qquad \Delta y = y_f - y_0 \qquad \Delta z = z_f - z_0$$

$$F = \sqrt{{F_x}^2 + {F_y}^2 + {F_z}^2}$$

$$d = \sqrt{{d_x}^2 + {d_y}^2 + {d_z}^2}$$

$$\sum \vec{F} = 0 \qquad \sum \overrightarrow{F_x} = 0 \qquad \sum \overrightarrow{F_y} = 0 \qquad \sum \overrightarrow{F_z} = 0$$

$$\sum \vec{M} = 0$$

4.46 A 6-m telephone pole weighing 1600 N is used to support the ends of two wires. The wires form the angles shown with the horizontal and the tensions in the wires are, respectively, $T_1 = 600$ N and $T_2 = 375$ N. Determine the reaction at the fixed end A.

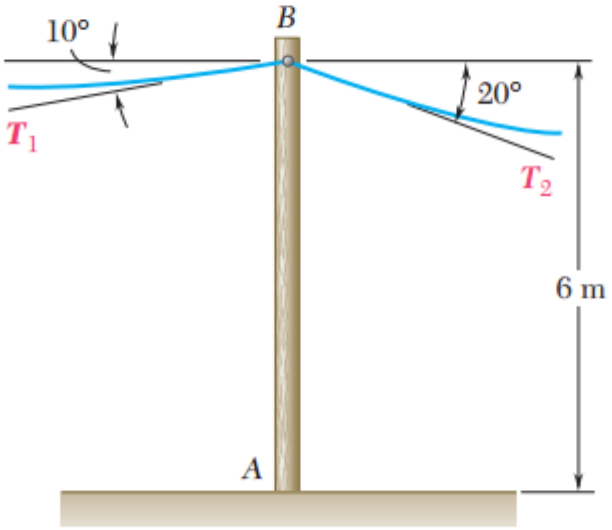

Fig. P4.46

4.35 A light rod AD is supported by frictionless pegs at B and C and rests against a frictionless wall at A. A vertical 120-lb force is applied at D. Determine the reactions at A, B, and C.

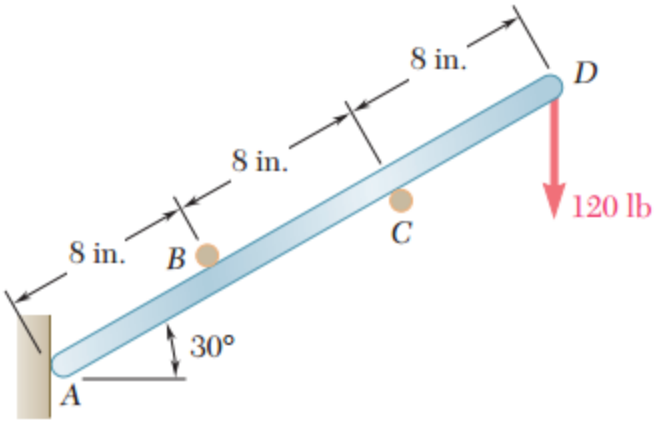

Fig. P4.35

4.153 A force **P** is applied to a bent rod *ABC*, which may be supported in four different ways as shown. In each case, if possible, determine the reactions at the supports.

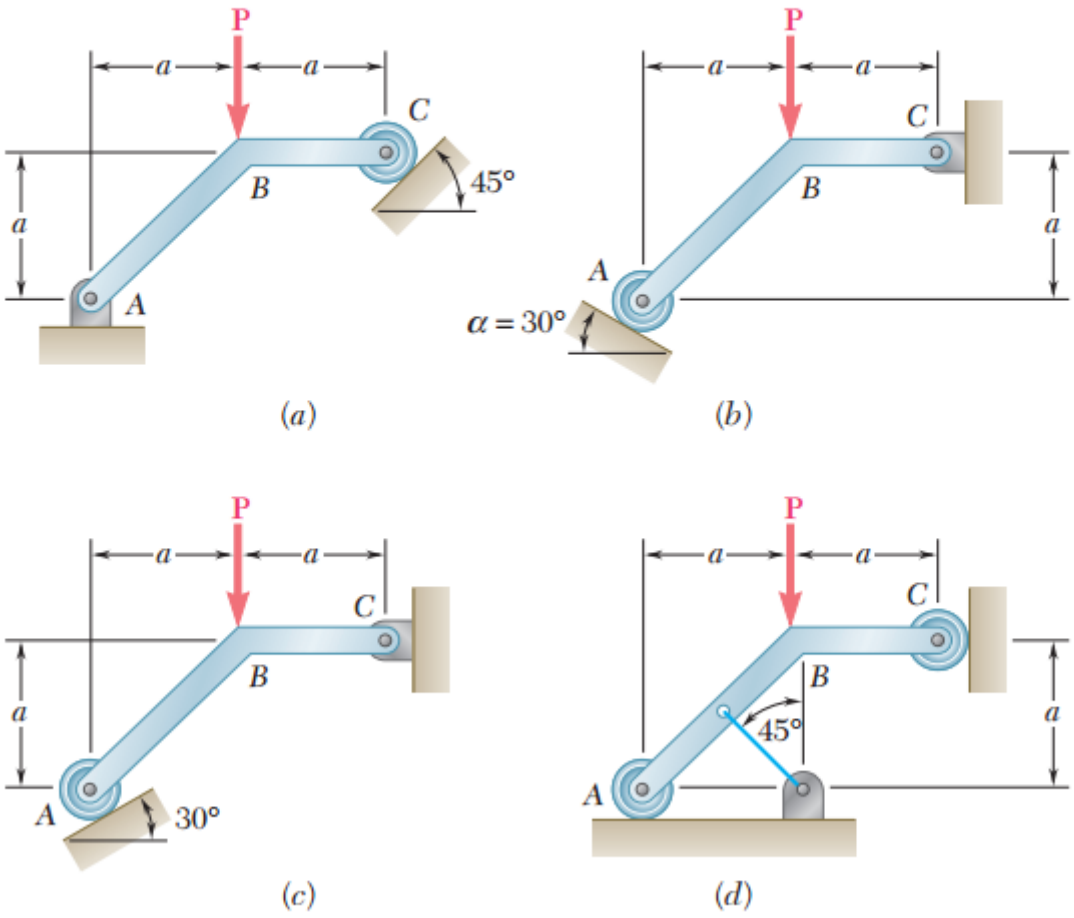

Fig. P4.153

4.149 Determine the reactions at A and B when $\beta = 50°$.

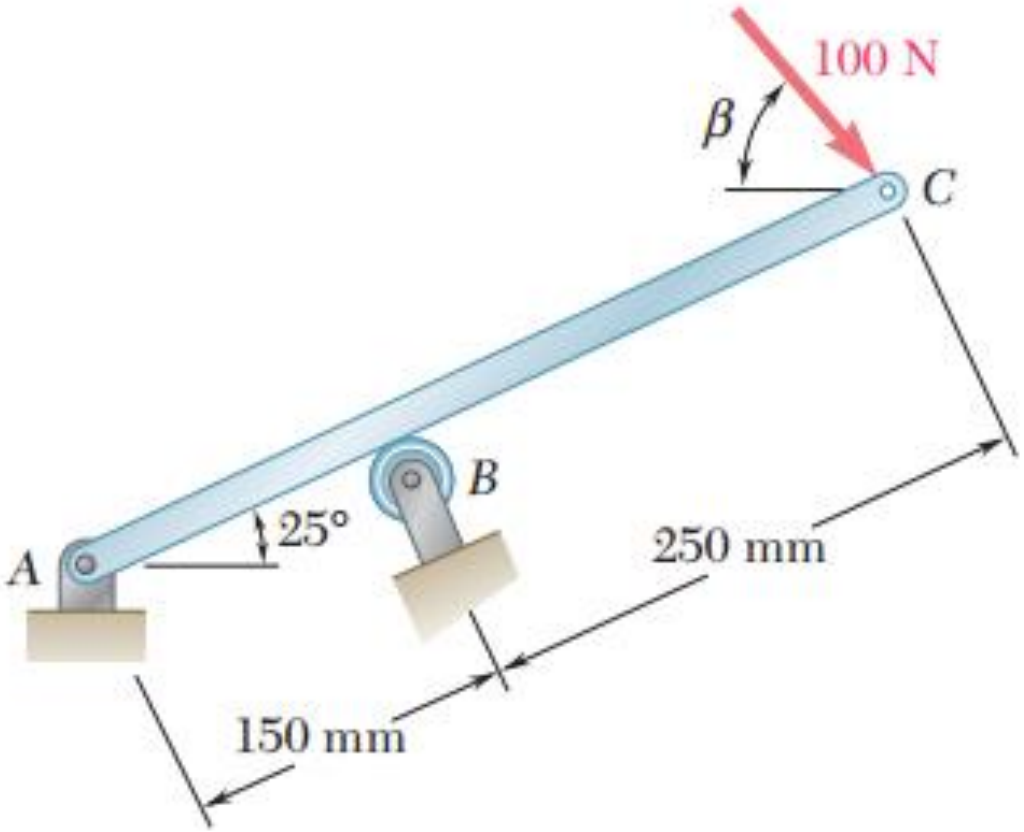

Fig. P4.149

4.99 The rectangular plate shown weighs 80 lb and is supported by three vertical wires. Determine the tension in each wire.

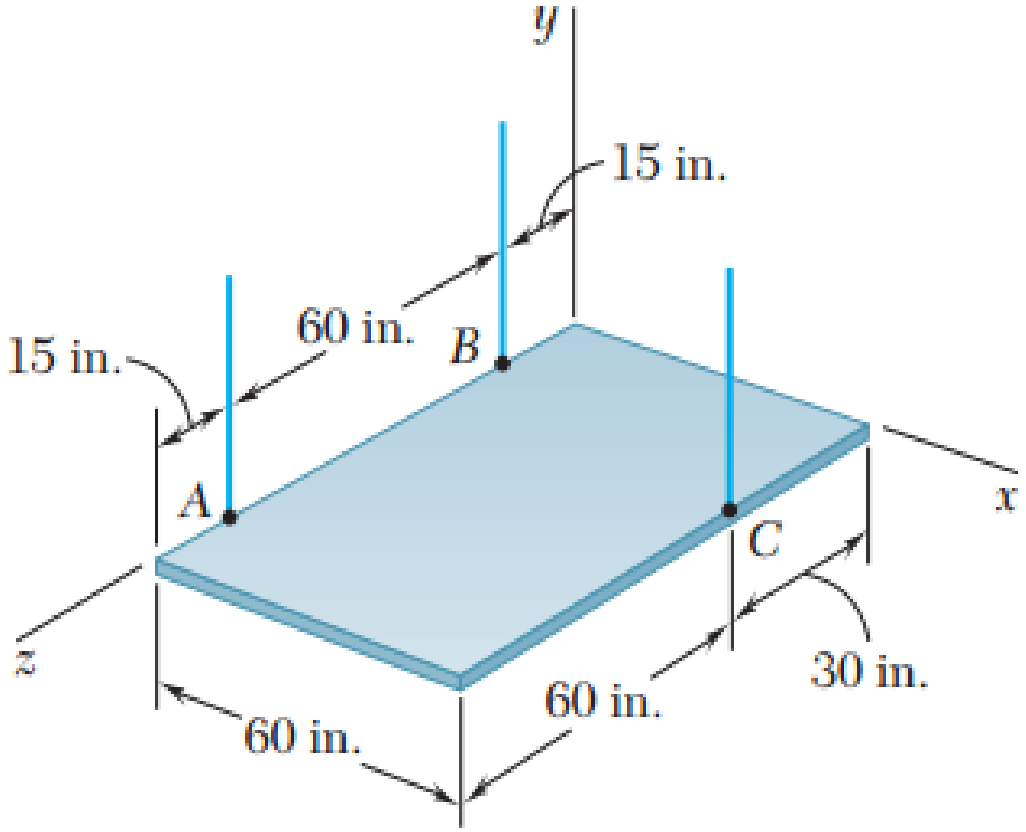

Fig. P4.99 and P4.100