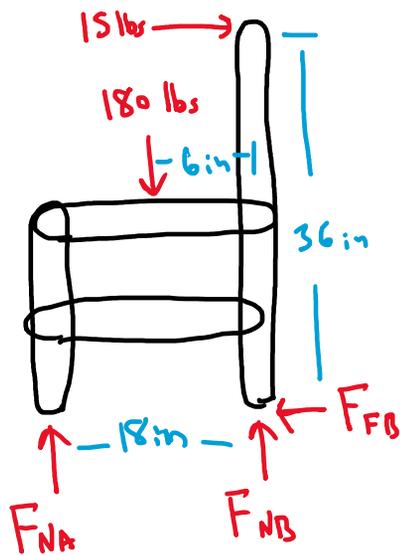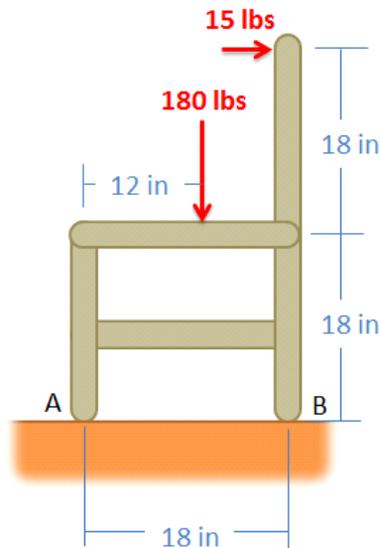# Question 5

While sitting in a chair, a person exerts the forces in the diagram below.
Determine all forces acting on the chair at points A and B. (Assume A is
frictionless and B is a rough surface).

$$\Sigma F_x = 15 - F_{FB} = 0$$

$$\Sigma F_y = F_{NA} + F_{NB} - 180 = 0$$

$$\Sigma M_B = -(F_{NA})(18) + (180)(6) - (15)(36) = 0$$

$$F_{NA} = \frac{-(15)(36) + (180)(6)}{18} = 30 \text{ lbs}$$

$$F_{FB} = 15 \text{ lbs}$$

$$F_{NB} = 180 - F_{NA} = 150 \text{ lbs}$$

$$\boxed{F_{NA} = 30 \text{ lbs} \qquad F_{NB} = 150 \text{ lbs} \qquad F_{FB} = 15 \text{ lbs}}$$