

4.17 The Snorkel Co. produces the articulating boom platform that can support a weight of 550 lb. If the boom is in the position shown, determine the moment of this force about points A, B, and C.

$$M = F \cdot d$$

for every point,  
consider the perpendicular distance ( $d_1$ ,  $d_2$  and  $d_3$ )

$$M_A = (550 \text{ lb}) (3') = \boxed{1650 \text{ lb}\cdot\text{ft}} \\ = 1.65 \text{ kips}\cdot\text{ft}$$

$$M_B = (550 \text{ lb}) (3 + 16 \cos 30^\circ) = \boxed{9271.02 \text{ lb}\cdot\text{ft}} \\ = 9.271 \text{ kips}\cdot\text{ft}$$

$$M_C = (550) (3 + 16 \cos 30^\circ - 15 \cos 70^\circ) = \boxed{6449.36 \text{ ft}\cdot\text{lb}} \\ = 6.449 \text{ kips}\cdot\text{ft}$$

