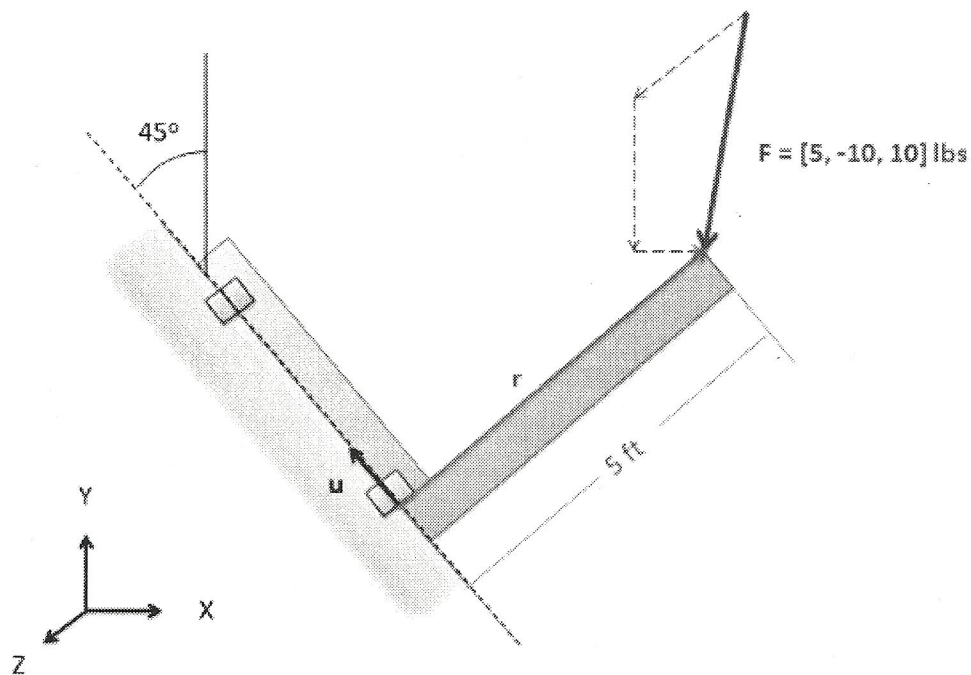
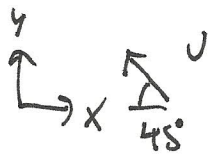


Question 1:

A flat L shaped plate is attached via two hinges as shown in the diagram below. If force F acts on the plate as shown in the diagram, what is the moment that force F exerts about the axis of the hinges?



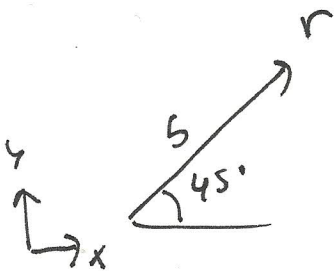
$$M = u \cdot (r \times F)$$



$$u = [-\cos(45), \sin(45), 0] \text{ ft}$$

$$r = [5\cos(45), 5\sin(45), 0] \text{ ft}$$

$$F = [5, -10, 10] \text{ lbs}$$



$$r \times F = [35.4, -35.4, -53.1]$$

$$U \cdot [35.4, -35.4, -53.1]$$

$$M = -50.06 \text{ ft lbs}$$

Solution:

$$M = -50.46 \text{ ft lbs}$$

about the axis shown