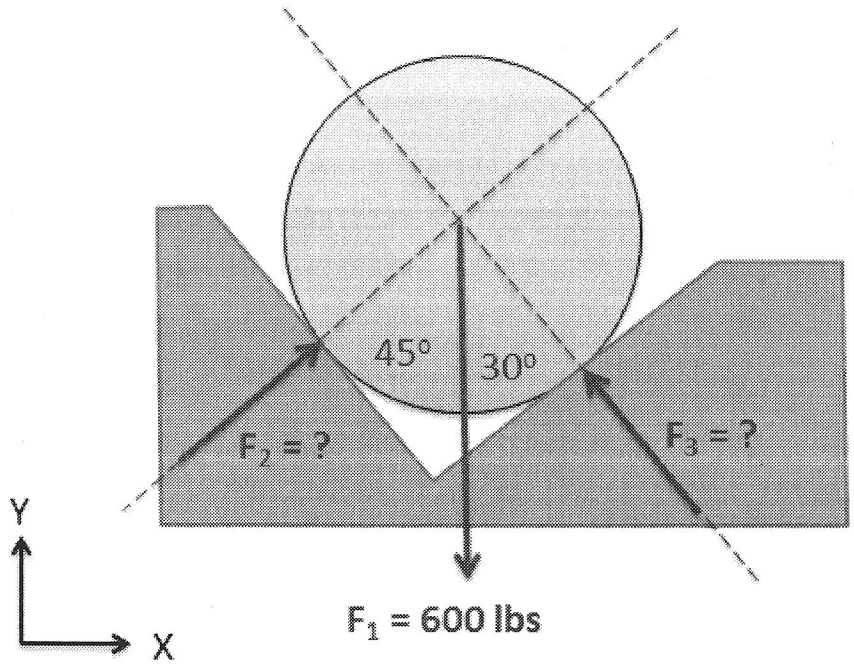
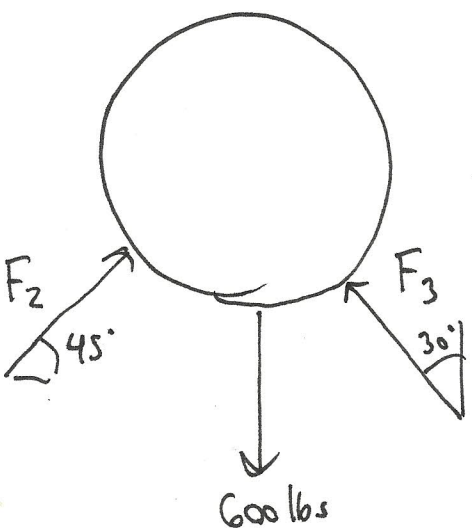
A 600 lb barrel rests in a trough as shown below. The barrel is supported by two normal forces (F2 and F3). Determine the magnitude of both of these normal forces.





$$\sum F_x = F_2 \cos(45) - F_3 \sin(30) = 0$$

$$\sum F_y = F_2 \sin(45) + F_3 \cos(30) - 600 = 0$$

$$F_2 = \frac{\sin(30)}{\cos(45)} F_3$$

$$\frac{\sin(30)}{\cos(45)} \sin(45) F_3 + \cos(30) F_3 = 600$$

$$F_3 = 439.2 \text{ lbs}$$

$$F_2 = 310.6 \text{ lbs}$$