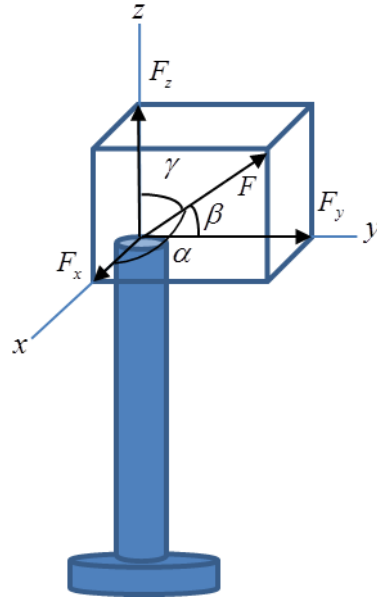


21. The force F applied to a pole has components acting along the x , y , z axes. If the distribution of the magnitude of F follows a normal distribution $N(6, 0.3^2)$ kN, and $\beta = 45^\circ$ and $\gamma = 60^\circ$. Determine the distributions of the magnitudes of its three components.



Solution: The distributions of the three components are $F_x \sim N(3, 0.15^2)$ kN, $F_y \sim N(4.24, 0.21^2)$ kN, and $F_z \sim N(3, 0.15^2)$ kN.