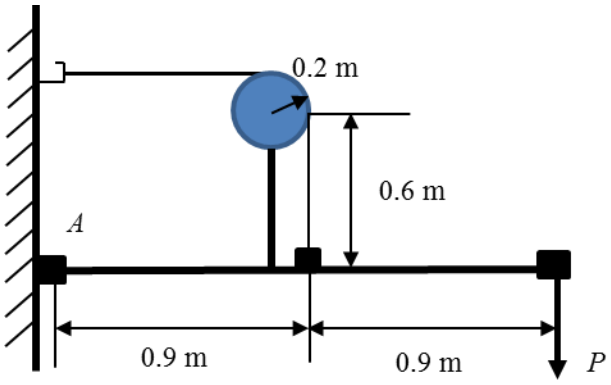
19. The distribution of force P is $P \sim N(1000, 50^2)$ N, and the strength of the cable is normally distributed with $T_S \sim N(2200, 250^2)$ N. P and T_S are independent. Determine the distribution of the resultant force at A, and the probability of failure of the cable.



Solution: The distribution of the resultant force at A is $F_A \sim N(3690, 246^2)$ N. The probability of failure of the cable is 0.01.