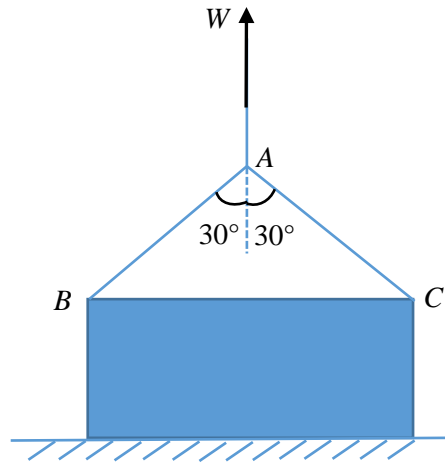8. Cable BAC is used to lift a loading. The force applied to the cable is normally distributed with $W \sim N(110, 5^2)$ lb. If the system is in the position shown below, determine the probability that the cable may fail. The allowable tension of the cable BAC follows normal distribution $T \sim N(80, 5^2)$ N. Assume that T and W are independently distributed.

Solution: The probability of failure is 0.0021.