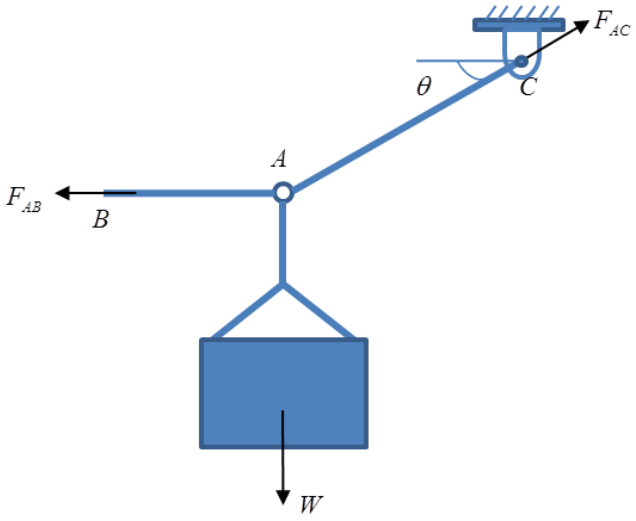
9. The weight of the crate follows a normal distribution $W \sim N(900, 40^2)$ lb, and the crate is hoisted using ropes *AB* and *AC* with a constant speed. *AB* always remains horizontal, and θ is 15°. If the strength (maximum tension) of the ropes also follows a normal distribution $S \sim N(3600, 110^2)$ lb and *S* is independent of *W*, determine the probability that rope *AB* and *AC* will break, respectively.



Solution: The probability of the break of rope *AC* is 0.259 and the probability of the break of rope *AB* is 0.097.