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3. A certain sports team has its team song performed by a different musician at the beginning of each of its games. The time it takes for the team song to be performed by different musicians can be modeled using a normal distribution with mean $\mu = 109$ seconds and standard deviation $\sigma = 16$ seconds. All performances of the team song are independent.

Part A

What is the probability that a randomly selected performance of the team song will take longer than 120 seconds? Show your work.

Part B

Ten performances of the team song will be randomly selected. Let the random variable X represent the number of games at which the performance of the team song takes longer than 120 seconds. Find $P(X \geq 3)$. Show your work.

Part C

Ben will attend all of the games for this sports team. Let the random variable Y represent the number of games Ben will attend until a performance of the team song takes longer than 120 seconds.

- Calculate the mean of Y . Show your work.
- Calculate the standard deviation of Y . Show your work.

Part D

Interpret the standard deviation calculated in part C (ii) in context.