# SF - Exponential Distribution

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| **What is exponential distribution used to do?** | Describe the waiting times between Poisson events. |
| **What is the cdf of the exponential distribution?** | Where F(x) is the probability of an event occurring in the time x.  *Where λ is the mean no. of occurence in a unit time.* |
| **What is the pdf of the exponential distribution?** | *This is by differentiating 1 - e-λt.* |
| **How can the mean and variance for exponential distribution be derived?** | *The derivation for E(X) requires integration by parts once. For E(X2), it’s required twice.* |
| **What is the memoryless function of the exponential distribution?** | Say an event hasn’t occurred after 30 seconds after t = 0. The probability of an event occurring in at least 10 seconds equals observing the event 10 seconds after t = 0. |