

# Calculating the probability that $X$ happens before $Y$



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- The video concerns how to calculate the probability that  $P(X < T)$ . What types of random variable must  $X$  and  $Y$  be in order for the derivation in the video to hold.
  - What is the cumulative probability distribution function and what is the probability density function for the type of random variable you mentioned in your answer to the first question.
  - Explain in your own words why the answer to this question is an integral and explain what the integrand of this integral represents.
  - Set a question like the one discussed in the question that asks for the probability that one random variable is less than another.