



The probability distribution function

- Explain why $\lim_{x \rightarrow -\infty} F_X(x) = 0$. $F_X(x)$ is the probability distribution function for the random variable X
- Explain why $\lim_{x \rightarrow +\infty} F_X(x) = 1$. $F_X(x)$ is the probability distribution function for the random variable X
- Consider a die and explain what set of outcomes are in each of the following subsets $\{s : (s \in \Omega) \wedge (x(s) \leq 0)\}$, $\{s : (s \in \Omega) \wedge (x(s) \leq 1)\}$, $\{s : (s \in \Omega) \wedge (x(s) \leq 1.5)\}$, $\{s : (s \in \Omega) \wedge (x(s) \leq 4.5)\}$ and $\{s : (s \in \Omega) \wedge (x(s) \leq 6.25)\}$. In these expressions Ω is used to represent the sample space for the experiment and $x(s)$ tells you the value that comes up when the dice is rolled.
- Sketch the probability distribution function for a random variable X tells you the outcome of a fair dice roll. Indicate all the points on this curve where the function is discontinuous.



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- Write a mathematical expression using limits which tells us that the function $f(x)$ has a discontinuity at a .