Independent random variables

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- What does it mean when we say that two random variables are independent?

- If the random variables X and Y are NOT independent is the following equality guaranteed to never hold $P(X = 1 \wedge Y = 2) = P(X = 1)P(Y = 2)$? Explain your reasoning.

- Is the probability of getting a 3 when I roll a dice independent of the probability of getting a 2 on the same roll? Explain your reasoning.

Independent random variables

- Is the following statement true or false "the set of values which a random variable can take all correspond to events that are independent of each other." Explain your reasoning.

- Given the following equation $P(X = x|Y = a \wedge Z = b) = P(X = x|Y = a)$ what can you conclude about the independence of the random variables X, Y and Z.