

Problem Wk.10.3.2: Summing to 1

Which of the following quantities must always sum to 1, no matter what the distribution is? (Assume A and B are binary variables).

These questions cannot be checked without giving them away. Think about them and do your best. Don't be frustrated if you get some wrong; just try to convince yourself of the reason.

1. $P(A=0)$ and $P(A=1)$
2. $P(A=0|B=0)$ and $P(A=1|B=0)$
3. $P(A=0|B=0)$ and $P(A=0|B=1)$
4. $P(A=0, B=0)$ and $P(A=0, B=1)$ and $P(A=1, B=0)$ and $P(A=1, B=1)$
5. $P(A=0)$ and $P(B=0)$

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6.01SC Introduction to Electrical Engineering and Computer Science
Spring 2011

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