

Solutions

2.1 Without replacement, $P(RR)=3/5 \times 2/4=0.3$.

2.2 $P(A|B)=P(A \cap B)/P(B)=0.12/0.3=0.4$.

2.3 Add the two orders: $3/5 \times 2/4 + 2/5 \times 3/4=0.6$.

2.4 False. Mutually exclusive means no overlap; independent means that knowing one event does not change the other's probability. Two disjoint events with positive probability are not independent.

2.5 A The probability of an event after restricting the sample space to a stated condition.

3.1 $P(RR)=3/5 \times 2/4=0.3$. $P(\text{at least one } R)=1-2/5 \times 1/4=0.9$. Conditional probability $=0.3/0.9=1/3$. The conditioning changes the sample space.