Ali Awari

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Discrete Structures II

Problem Set #2

1. Four candidates, A, B, C, and D, are running for an elected office. Candidate A is twice as likely to be elected as Candidate B. Candidates B and C are equally likely to be elected, while candidate C is twice as likely to be elected as Candidate D. What are the probabilities;
   1. Each candidate will win?
   2. Candidate A will not win?
2. Two cards are simultaneously and randomly selected from a standard deck of 52 cards. What is the probability that both cards selected will be between 3 and 8?

P(3 < x < 8) = 16/52 AND 15/51 = (16\*15) / (52\*51) = 240 / 2652

1. In a certain household, the probability the husband votes in a particular election is , the probability that the wife votes in the same election is and the probability that they both vote in the election is . What is the probability that at least one votes in the election?

P(H) = .21, P(W) = .28, P(H AND W) = .15

P(H OR W) = .49 - .15 = .34

1. The acceptance rate at Harvard University is 5.6% of its applicants, while the acceptance rates at Yale and Princeton are a more *generous* 6.7% and 6% from and applicants respectively. What is the probability that a student is accepted to Harvard, and Yale, and Princeton?

denom(H) = .056\*42,500, denom(Y) = .067\*35,000, denom(P) = .06 \* 30,000