

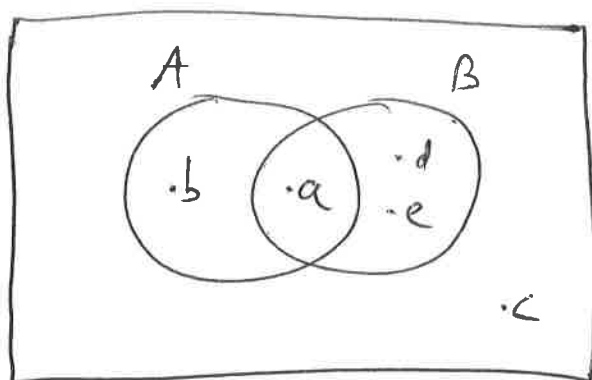
Finite Mathematics (Math 10120), Spring 2018

Quiz 2, Friday February 23

Name: SOLUTIONS

1. (5 pts) The sample space for a particular experiment is $S = \{a, b, c, d, e\}$. Suppose that we have $P(a) = 0.1$, event $A = \{a, b\}$ with $P(A) = 0.4$, and event $B = \{a, d, e\}$ with $P(B) = 0.3$.

Draw a Venn Diagram for the events A and B . Then find $P(\{c\})$.



$$\begin{aligned} \{a\} &= A \cap B \\ P(A \cup B) &= P(A) + P(B) - P(A \cap B) \\ &= .4 + .3 - .1 \\ &= .6 \end{aligned}$$

Since $\{c\} = (A \cup B)^c$,

$$P(\{c\}) = 1 - P(A \cup B) = 1 - .6 = \boxed{.4}$$

2. (5 pts) In the game of Bridge, each player is dealt a 13 card hand at random. What is the probability that a hand contains at most 2 clubs?

(a) $\frac{C(39, 9) \cdot C(43, 4)}{C(52, 13)}$

(b) $\frac{C(13, 0) \cdot C(52, 13) + C(13, 1) \cdot C(51, 12) + C(13, 2) \cdot C(50, 11)}{C(52, 13)}$

(c) $\frac{C(13, 0) + C(13, 1) + C(13, 2)}{C(52, 13)}$

(d) $\frac{C(13, 2)}{C(52, 13)}$

(e) $\frac{C(13, 0) \cdot C(39, 13) + C(13, 1) \cdot C(39, 12) + C(13, 2) \cdot C(39, 11)}{C(52, 13)}$

0 clubs

13 non-clubs

1 club

12 non-clubs

2 clubs

11 non-clubs