

This quiz covers material from sections 7.1–7.4. Show your work.

1. (3 points) An experiment has outcomes $\{s_1, s_2, s_3, s_4, s_5\}$. If $P(s_2) = \frac{1}{2}$, $P(s_3) = 0$, $P(s_4) = \frac{1}{3}$, and $P(s_5) = \frac{1}{12}$, what is

a. (1 pt) $P(s_1)$

b. (1 pt) $P(E^c)$, where $E = \{s_1, s_2, s_3\}$

c. (1 pt) Let $F = \{s_3, s_4, s_5\}$. Are the events E^c and F^c mutually exclusive?

2. (3 points) Given $P(A) = .3$, $P(B) = .4$, $P(A \cup B) = .6$

a. (1 pt) Find $P(A \cap B)$

b. (1 pt) Find $P(A \cap B^c)$

c. (1 pt) Find $P(A^c \cap B^c)$

3. (4 points) A high school principal has instituted a new policy to discover contraband. Every week, twenty lockers are opened at random. The school has a total of 1000 lockers.

a. (2 pts) What is the size of the sample space?

b. (2 pts) What is the probability that a given locker is searched?