

This quiz covers material from sections 7.4–7.5. Show your work.

1. (6 points) For each pair of events, determine if they are independent. You must use the proper formula to get credit.

a. (2 pts) Events A and B , where $P(A) = .3$, $P(B) = .6$, and $P(A \cup B) = .7$.

b. (2 pts) Events E and F , where $E = \{s_1, s_2\}$ and $F = \{s_2, s_3\}$ are subsets of a *uniform* sample space $S = \{s_1, s_2, s_3, s_4\}$.

c. (2 pts) Events X and Y , where the experiment is flipping a coin three times. Let X be the event where the first flip is heads, and Y be the event where all three flips come up the same way.

2. (4 points) An urn contains fifty red marbles and three blue marbles. Three marbles are selected at random without replacement.

a. (2 pts) What is the probability of getting three blue marbles?

b. (2 pts) What is the probability of getting at least one blue marble?