Quiz 1 (15 min)

Name: _____

Date: Monday, June 24^{th}, 2019.

Problem 1:

Let A, B, and C be three events in the sample space S. Suppose we know

- $A \cup B \cup C = S$,
- $P(A) = \frac{1}{2}$,
- $P(B) = \frac{2}{3}$,
- $P(A \cup B) = \frac{5}{6}$.

Answer the following questions:

(a) Find $P(A \cap B)$.
(b) Do A, B, and C form a partition of S?
(c) Find $P\big(C - (A \cup B)\big)$.
(d) If $P(C \cap (A \cup B)) = \frac{5}{12}$. Find $P(C)$.

Problem 2:

An urn consists of 30 red balls and 70 green balls. What is the probability of getting exactly k red balls in a sample of size 20 if the sampling is done without replacement (repetition not allowed)?