MATH 10B with Prof. Stankova
DIS 102; TTh 8:00∼ 9:30am
GSI: Seewoo Lee

Quiz 4

Student:
SID:
Tue 2/19/19

True/False - No explanation needed. (2pts)

1. For any events $A, B \subseteq \Omega$, we have $P(A \cup B) + P(A \cap B) = P(A) + P(B)$. True/False
2. Sending off newly-married couples to honeymoons on different planets around the universe will provide a counterexample for the even version of the "Odd-pie fight" problem. True/False

Problems - Need justification. No justification means **zero**!

1. What is the probability that a 5-card poker hand contains no aces? (A 5-card poker hand consists of 5 cards from a 52 card standard deck.) (5pts)

2. Prove that
$$1 \cdot 2 + 2 \cdot 3 + \cdots + n \cdot (n+1) = \frac{n(n+1)(n+2)}{3}$$
for all $n \geq 1$, by using mathematical induction. (5pts)