Student: _____	**Instructor:** James Howard	**Assignment:** Quiz 5
Date: _____	**Course:** MATH 106 -- Fall 2012 OL4	
Time: _____	**Book:** University of Maryland University College: MAT106: Finite Mathematics	

1. Suppose that at each birth, having a girl is not as likely as having a boy. The probability assignments for the number of boys in a 3-child family are approximated empirically from past records and are given in the table. What is the expected number of boys in a 3-child family?

Number of Boys	
x_i	p_i
0	0.13
1	0.38
2	0.41
3	0.14

The expected number of boys in a 3-child family is ☐.
(Type an integer or a decimal.)

2. What is the probability that a number selected at random from the first 1,000 positive integers is (exactly) divisible by 14 or 49?

Probability = ☐ (Type a decimal.)

3. Two balls are drawn in succession out of a box containing 4 red and 4 white balls. Find the probability that at least 1 ball was red, given that the first ball was

(A) Replaced before the second draw.

(B) Not replaced before the second draw.

(A) Find the probability that at least 1 ball was red, given that the first ball was replaced before the second draw.

☐ (Simplify your answer. Type an integer or a fraction.)

(B) Find the probability that at least 1 ball was red, given that the first ball was not replaced before the second draw.

☐ (Simplify your answer. Type an integer or a fraction.)

4. An experiment consists of rolling two fair dice and adding the dots on the two sides facing up. Assuming each simple event is as likely as any other, find the probability that the sum of the dots is greater than 8.

The probability that the sum of the dots is greater than 8 is ☐.
(Type a fraction. Simplify your answer.)

5. An experiment consists of tossing n coins. Let A be the event that at least 5 heads turn up, and let B be the event that all the coins turn up the same. Test A and B for independence if **(i)** n = 5 coins are tossed or **(ii)** n = 6 coins are tossed.

(i) When 5 coins are tossed, determine whether events A and B are independent.

- ○ Dependent
- ○ Independent

(ii) When 6 coins are tossed, determine whether events A and B are independent.

- ○ Independent
- ○ Dependent