Math 114, Activity 3.1 Name________________________________

M&M's Probability Activity

Color	Quantity
Yellow (Y)	
Green (G)	
Blue (L)	
Brown (B)	
Orange (O)	
Red (R)	

Count out 40 M&M's.
Record the number of each color.
Place the M&M's in a cup.

Draw two M&M's 24 times with replacement and record the colors.
Repeat the experiment without replacement and record the results.

With Replacement	Without Replacement
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)
(_______, _______) (_______, _______)	(_______, _______) (_______, _______)

Empirical Probabilities		
Using the results from your experiments, complete the table of probabilities. *Round your answers to the 3rd decimal place.*		
	With Replacement	Without Replacement
P(2 reds)		
$P(R_1B_2$ or $B_1R_2)$		
$P(R_1$ and $G_2)$		
$P(G_2 \mid R_1)$		
P(no yellows)		
P(doubles)		
P(no doubles)		

Theoretical Probabilities		
Using the counts of the M&M's in your set, calculate the following theoretical probabilities. *Round your answers to the 3rd decimal place.*		
	With Replacement	Without Replacement
P(2 reds)		
$P(R_1B_2$ or $B_1R_2)$		
$P(R_1$ and $G_2)$		
$P(G_2 \mid R_1)$		
P(no yellows)		
P(doubles)		
P(no doubles)		

Law of Large Numbers		
Using the class results from the experiment, complete the table of probabilities. *Round your answers to the 3rd decimal place.*		
	With Replacement	Without Replacement
P(2 reds)		
$P(R_1B_2$ or $B_1R_2)$		
$P(R_1$ and $G_2)$		
$P(G_2 \mid R_1)$		
P(no yellows)		
P(doubles)		
P(no doubles)		