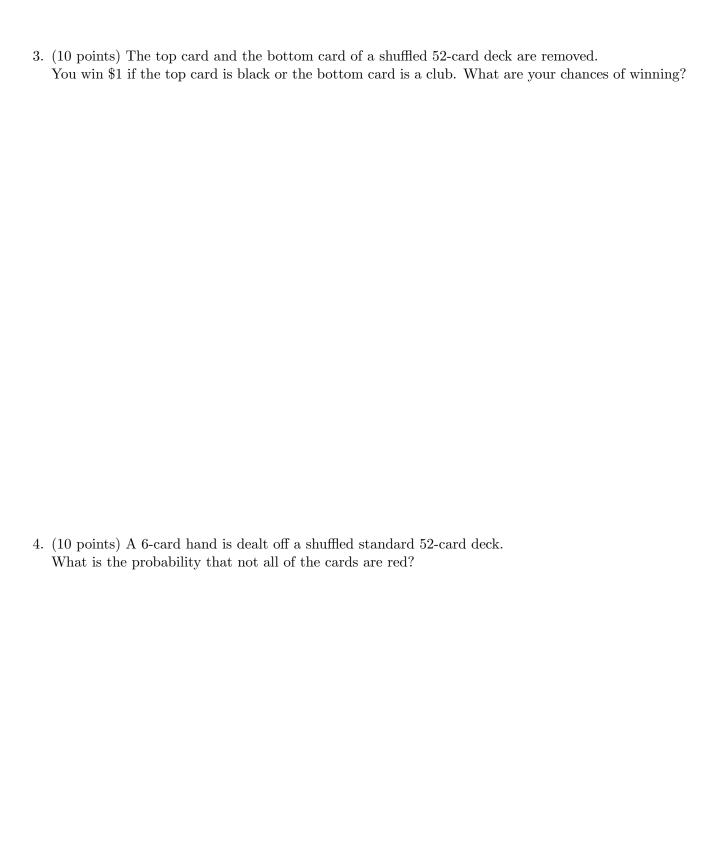
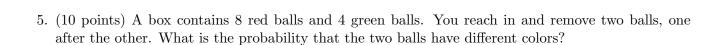
MATH 211	Test #2 \heartsuit	April 11, 2023
Name:	R. Hammack	Score:

Directions You must show your work to get full credit. This test is closed-book and closed-notes. No calculators or other electronic devices are allowed. Simplify your answers if it is easy to do so, but you may leave complex answers unsimplified. All you will need is something to write with.

1. (10 points) Toss a coin and then roll a 6-sided dice. Write out the sample space S for this experiment. Consider the event E: The coin is heads and the dice is even. Circle E in S. Find p(E).

2. (10 points) Toss a fair 6-sided dice 5 times in a row. What are the chances that at least one of the tosses is odd?





6. (10 points) Suppose $A, B \subseteq S$ are two events in the sample space S of some experiment. Suppose p(A) = 50%, p(B) = 60% and p(A|B) = 50%.

(a)
$$p(A \cap B) =$$

(b)
$$p(A \cup B) =$$

(c)
$$p(B|A) =$$

(d)
$$p(\overline{B}) =$$

7. (10 points) A coin is tossed four times in a row, and there are more heads than tails. What is the probability that the first toss is a head?

8. (10 points) Give the output for the following chunk of pseudocode.

```
\begin{array}{l} y := 3 \\ \textbf{for} \quad n := 1 \quad \textbf{to} \quad 6 \quad \textbf{do} \\ \mid \quad \textbf{output} \quad y \\ \mid \quad y := 10 - y \\ \textbf{end} \end{array}
```

9. (10 points) What does the following algorithm do?

```
Algorithm
Input: A list X = (x_1, x_2, ..., x_n) of integers
Output: ?
begin
| sum := 0 
for k := 1 to n do
| sum := sum + x_k 
end
| sum := \frac{sum}{n} 
output sum
end
```

10. (10 points) Write an algorithm whose input is a positive integer n and whose output is the first n terms of the sequence 1, 2, 4, 8, 16, 32, 64...