Part 2.4: When to Add vs When to Multiply Exercise

1. I have 10 marbles in a bag. They all have a letter on them, either A, B, C or D.

x	A	B	C	D
P(X=x)	0.4	0.2	0.1	0.3

After drawing a ball out and looking at it, I always return it to the bag.
   a. What is the probability of pulling out a ball labelled C then a ball labelled D?
   b. What is the likelihood of pulling out a ball labelled C or a ball labelled D?
   c. Calculate the probability of pulling ball C out twice in a row.
   d. What is the probability you pull out the same letter twice in a row?

2. I have a number of 4 sided dice with numbers 1 to 4 on them. What is the probability:
   a. I get a total of 2 when I throw two dice (both land on 1)?
   b. I get 3 or 4 when I throw once die?
   c. I get a total of 7 when I throw two dice? (either 3 and 4, or 4 and 3)
   d. I get a total of 6 when I throw two dice?

3. The number of spas sold during a week at a successful spa shop is shown in the table below.

x	0	1	2	3	4
P(X=x)	0.1	0.4	0.3	0.1	k

   a. What is the missing value (k)?
   b. What is the probability of selling 2 or 3 spas in a week?
   c. What is the probability of selling 2 spas in two consecutive weeks?
   d. What is the probability of selling no spas 3 weeks in a row?

4. A student has gone into a multi choice test without doing any preparation. There are two questions he has no idea on, therefore needs to guess the answer to the questions.
   One has 5 possible answers, with two of them being correct (only needs to choose one of the correct answers), and the other one has 4 possible answers, with only one of the answers being correct.
   What is the probability:
   a. In the question with 5 possible answers, they get it correct?
   b. They get both questions correct?
   c. The get one of the two questions correct?

Part 2.4 Answers

1a. 0.03
1b. 0.4
1c. 0.01
1d. 0.3

2a. 0.0625
2b. 0.5
2c. 0.125
2d. 0.1875

3a. 0.1
3b. 0.4
3c. 0.09
3d. 0.001

4a. 0.4
4b. 0.1
4c. 0.45