

TB(3B) Ch. 12 Introduction to Probability

Conventional Questions

1. [16-17 S.3 Final Exam #7]

A fair coin is tossed once and a fair dice is thrown once.

(a) Let H stand for a head and T stand for a tail. List all the possible outcomes in the table. For example, if the result is head and 1, write H1. (1 mark)

		dice					
		1	2	3	4	5	6
coin	H	H1					
	T						

(b) Write down the probability that the result is a head and an even number. (1 mark)

2. [16-17 S.3 Final Exam #11]

There are 4 houses in a school: G, H, R and S house. Students would be assigned to one of them with equal chance when they were admitted to the school.

(a) A student is randomly selected. Find the probability that the student is in H house. (1 mark)

(b) 50 students are randomly selected to form a group and the information is shown below.

House	G House	H House	R House	S House
Number of students	10	14	11	15

(i) Write down the experimental probability that the student is in H House. (1 mark)

(ii) In a school event, this group of 50 students are getting different numbers of gifts according to their houses: students from G, H, R and S house are getting 10, 5, 2 and 1 gifts respectively. If one student is selected from these 50 students randomly, find the expected value of the number of gifts with the use of experimental probability. (2 marks)

3. [17-18 S.3 Final Exam #7]

Figure 3 shows a triangular dartboard ADE . A dart is thrown to hit the dartboard. Suppose $AB : BD = 3 : 2$.

(a) Find the probability that the dart hits $\triangle ABC$. (2 marks)

(b) 10 marks will be awarded for hitting $\triangle ABC$ and 6 marks will be awarded for hitting quadrilateral $BCED$. Jason throws a dart at random and the dart hits the dartboard. Find the expected value of the marks Jason will get in one throw. (2 marks)

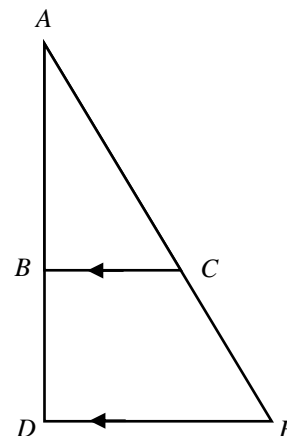


Figure 3

4. [17-18 S.3 Final Exam #8]

A bag contains chocolate beans in three colours. There are 1 red bean, 2 green beans and 3 yellow beans. Sara draws one bean at random each time.

- (a) Using ‘R’, ‘G₁’, ‘G₂’, ‘Y₁’, ‘Y₂’ and ‘Y₃’ to represent 1 red, 2 green and 3 yellow beans respectively, list all the possible outcomes in the first two draws without replacement by using the given table. **(2 marks)**

		2 nd draw					
		R	G ₁	G ₂	Y ₁	Y ₂	Y ₃
1 st draw	R						
	G ₁						
	G ₂						
	Y ₁						
	Y ₂						
	Y ₃						

- (b) Find the probability of getting beans of the same colour in the first 2 draws without replacement. **(1 mark)**
- (c) Find the probability of getting beans of the different colours in the first 3 draws without replacement. **(1 mark)**

5. [18-19 S.3 Final Exam #4]

There are 8 red gems and n blue gems in a bag. Hawkeye randomly selects a gem from the bag. If

the probability of getting a blue gem is $\frac{3}{5}$, find the value of n . **(2 marks)**

6. [18-19 S.3 Final Exam #5]

Five balls numbered “2”, “3”, “4”, “4” and “5” respectively are put in a bag. Katherine draws two balls one by one from the bag at random without replacement.

- (a) List all the possible outcomes in the table below. For example, if the first ball is “2” and the second ball is “3”, write (2, 3). **(1 mark)**

		Second ball				
		2	3	4	4	5
First ball	2					
	3					
	4					
	4					
	5					

- (b) Find the probabilities of getting
- (i) two odd numbers,
- (ii) a sum of at least 7. **(2 marks)**

~ End ~