

CHAPTER 7

Probability



Basic probability (1)

QUESTION 1 Complete:

- a If an outcome, A, is certain then $P(A) =$ _____
- b If an outcome, B, is impossible then $P(B) =$ _____
- c For any event E, _____ $\leq P(E) \leq$ _____
- d The sample space is the set of all _____
- e The sum of the probabilities of every event in the sample space is _____

Question 2 List the sample space for each experiment:

- a tossing a coin _____
- b throwing a die _____
- c choosing a letter from those in the words SAMPLE SPACE _____
- d choosing a card from the diamonds in a pack of cards _____
- e choosing an Australian coin _____
- f choosing the day of the week on which a person's birthday falls _____

QUESTION 3 An ordinary die is thrown. What is the probability that the uppermost face shows:

- a 4 _____
- b 6 _____
- c 7 _____
- d an even number _____

QUESTION 4 A card is selected at random from a standard pack of 52 playing cards. What is the probability that the card is:

- a red _____
- b a heart _____
- c a king _____
- d the jack of clubs _____
- e a black diamond _____
- f a red two _____

QUESTION 5 A bag holds 5 yellow, 7 green and 8 blue marbles. If one marble is selected at random, what is the probability that it is:

- a green _____
- b blue _____
- c not yellow _____
- d red _____

Probability

Basic probability (2)

QUESTION 1 1000 tickets are sold in a raffle. Oliver buys 10 tickets. What is the probability that Oliver wins first prize?

QUESTION 2 A pair of dice is thrown. What is the probability that they show a total of 12?

QUESTION 3 'As there are 26 letters in the alphabet, the probability that a letter I choose at random from the page of a novel will be x is $\frac{1}{26}$.' Briefly explain why this statement is false.

QUESTION 4 A spinner used in a board game is equally likely to land on any of the numbers 1, 2, 3, 4 or 5. In one spin what is the probability that it lands on:

a 4 **b** an odd number **c** an even number

d a number less than 3 **e** 4 or less

QUESTION 5 Two dice are tossed and the numbers on the uppermost faces are added to form the score.

a Complete the table.

+	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

What is the probability of a score:

b of 10 **c** less than 8 **d** 7 or higher

Page 177 1 a 1 b 0 c 0, 1 d possible outcomes e 1 2 a head, tail b 1, 2, 3, 4, 5, 6 c A, C, E, L, M, P, S
 d A, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K e 5c, 10c, 20c, 50c, \$1, \$2 f Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday

3 a $\frac{1}{6}$ b $\frac{1}{6}$ c 0 d $\frac{1}{2}$ 4 a $\frac{1}{2}$ b $\frac{1}{4}$ c $\frac{1}{13}$ d $\frac{1}{52}$ e 0 f $\frac{1}{26}$ 5 a $\frac{7}{20}$ b $\frac{2}{5}$ c $\frac{3}{4}$ d 0

Page 178 1 $\frac{1}{100}$ 2 $\frac{1}{36}$ 3 Each letter is not equally likely to occur. 4 a $\frac{1}{5}$ b $\frac{3}{5}$ c $\frac{2}{5}$ d $\frac{2}{5}$ e $\frac{4}{5}$

5 a

+	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

b $\frac{1}{12}$ c $\frac{7}{12}$ d $\frac{7}{12}$