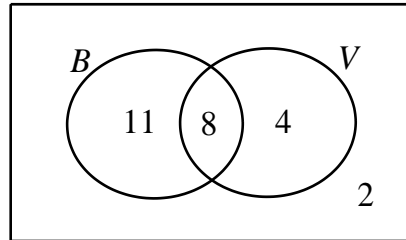# Quiz2 - Probability of Events

■ calculator is allowed on all questions ■   **[total marks on quiz: 40 marks]**

1. The Venn diagram below shows the number of students in a particular class who play basketball, *B*, and the number of students in the class that play volleyball, *V*.

If a student is chosen at random from the class, find the probability that the student …

(a) plays basketball;

(b) does not play volleyball;

(b) plays at least one of the two sports;

(d) plays volleyball if it is known that the student plays basketball.   **[6 marks]**

2. A fair coin is tossed four times. Find the probability that you get:

(a) exactly four heads;   (b) at least one tail.   **[5 marks]**

3. Three <u>different</u> numbers are chosen at random from the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9.
Find the probability that the numbers chosen will be

(a) all odd;   (b) one odd and two even numbers.   **[6 marks]**

4. Given *A* and *B* are independent events, and $p(A) = 0.64$, $p(A \cup B) = 0.73$, find $p(B)$.   **[6 marks]**

5. A bag contains twelve marbles. Eight of the marbles are blue and four of them are green. If two marbles are chosen (without replacement), what is the probability of getting:

(a) two blue marbles;

(b) one blue marble and one green marble, in any order.   **[6 marks]**

6. Louis and Pierre play a match consisting of five games, each of which must be won or lost. In each of the first three games the probability that Louis will win is $\dfrac{2}{3}$ and in the remaining two games the probability is $\dfrac{3}{4}$. Find the probability that Louis will win four or more of the games.   **[5 marks]**

7. If $P(X) = 0.8, P(Y) = 0.6$ and *X* and *Y* are independent events, find the probability that:

(a) both *X* and *Y* occur;

(b) *X* or *Y* occur but not both *X* and *Y*.   **[6 marks]**