**1.** A group of Year 10 students were surveyed regarding their TV viewing habits, sport they played, junk food they ate and pets they had. The results are represented in the Venn diagrams below. Describe what it is being shown by the shaded area in each Venn Diagram:

**(a)** M = watches Master Chef N = watches Neighbours

**(i) (ii) (iii)**

**N**

**M**

**M**

**N**

**M**

**N**

**(b)** T **=** plays tennis F – plays Football

**(i) (ii) (iii)**

**F**

**T**

**F**

**T**

**F**

**T**

**(c)** M = MacDonald’s K = KFC H = Hungry Jack’s

**(i) (ii) (iii)**

**H**

**M**

**K**

**K**

**H**

**M**

**H**

**K**

**M**

**(d)** B = bird C = Cat D = dog

**(i) (ii) (iii)**

**C**

**D**

**B**

**C**

**D**

**B**

**C**

**D**

**B**

**2.** The numbers from 12 are placed in a Venn diagram as shown, where A = {multiples of 3} and

B = {numbers greater than 7}

**(a)** A bag contains twelve balls numbered 1 to 12. A ball is selected

**A**

**B**

3

6

12

9

8

11

2

1

10

5

7

at random. Use the Venn diagram to find the probability of

obtaining a ball with a number that is both a multiple of 3 and

greater than 7:

4

**(b)** Find the probability of the ball being either a multiple of 3 or

greater than 7:

**3.** A Year 10 class has been talking about the subjects they have chosen to do on Semester 2. They are particularly interested in who is doing Outdoor Ed and P.E. The results are shown in the Venn diagram below:

**(a)** How many students are there in the class?

7

10

5

3

**OE**

**P.E.**

**(b)** How many students are doing both Outdoor Ed and P.E?

**(c)** How many students are doing P.E?

**(d)** A student from the class is chosen at random, find the

probability that:

**(i)** they are doing Outdoor Ed only.

**(ii)** they are doing neither of the two subjects.

**5.** The numbers from 1 to 10 are written on 10 cards and out of these a card is chosen at random.

Draw Venn diagrams to find the probability of the number on the card being

**(a) (i)** less than 3 and divisible by 5 **(ii)** Less than 3 or divisible by 5

**(b) (i)** less than 5 and divisible by 2 **(ii)** less than 5 or divisible by 2

**5.** Thenumbers from 1 to 20 are written on 20 cards and out of these a card is chosen at random.

Draw Venn diagrams to find the probability of the number on the card being

**(a) (i)** less than 4 and divisible by 5 **(ii)** less than 4 or divisible by 5

**(b) (i)** less than 8 and divisible by 3 **(ii)** less than 8 or divisible by 3

**6.** From a normal pack of 52 playing cards, one card is selected at random.

Draw Venn diagrams to find the probability of the card being

**(a)** either a red card and a king. **(b)** either a red card or a king.

**7.** Two dice are thrown simultaneously.

Draw Venn diagrams to find the probability of

**(a)(i)** a double and a total of 8 **(ii)** a double or a total of 8

**(b)(i)** a total that is even and less than 5 **(ii)** a total that is even or less than 5

**8.** All of the Year 10 students were surveyed regarding their fruit

ξ

eating habits. Some of the results are shown in the Venn diagram.

**B**

**A**

**A =** eats apples **B =** eats bananas

10

7

5

Find:

**(a)** *n*(A) (the number of students who eat apples)

3

**(b)** *n*(ξ) (the number of students in Year 10)

**(c)** *n*(A ∩ B) (the number of students who eat both apples and bananas)

**(d)** *n*(A ∪ B) (the number of students who either apples or bananas)

**(e)** *n*(B’) (the number of students who don’t eat bananas)

**(f)** A student is chosen at random. Find:

**(i)** Pr(A) **(ii)** Pr(B) **(iii)** Pr(A ∩ B)

**(iv)** Pr(A ∪ B) **(v)** Pr(A’) **(vi)** Pr(A ∩ B’)

**(vii)** Pr(A ∪ B)’ **(viii)** Pr(A ∩ B)’ **(ix)** Pr(A’ ∪ B’)