

## 5A Sample Spaces & Probability from Data

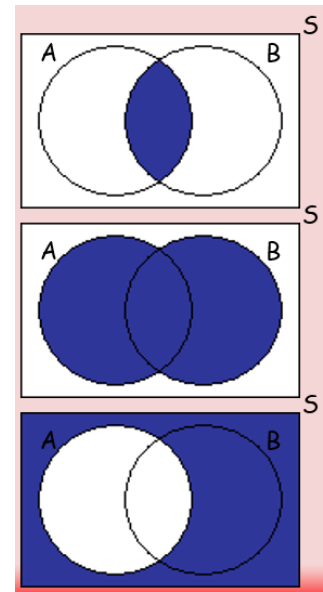
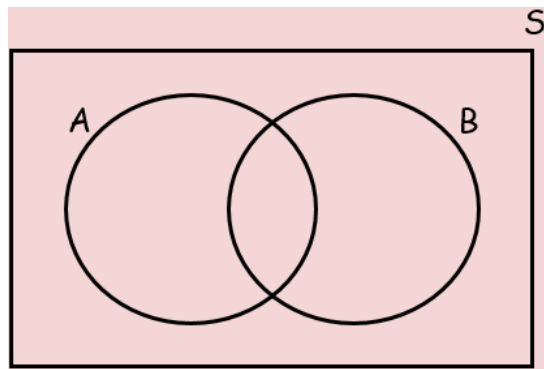
- Two spinners are numbered 1-4. Both are spun and the sum of the numbers ( $x$ ) is calculated.  
Find  $P(x = 5)$  and  $P(x > 5)$   
Draw a sample space to show the outcomes.

- The table shows the time taken, in minutes, for a group of students to complete a number puzzle.
  - Estimate the probability that a student completed the puzzle in under 9 minutes

Time, $t$	Frequency
$5 \leq t < 7$	6
$7 \leq t < 9$	13
$9 \leq t < 11$	12
$11 \leq t < 13$	5
$13 \leq t \leq 15$	4

- Estimate the probability that a student completed the puzzle in 10 minutes or more

## 5B Venn Diagrams



1. A card is selected at random from a pack of 52 playing cards. Let A be the event that the card is an ace, and D be the event that the card is a diamond. Draw a Venn diagram to show this information.

2. In a class of 30 students, 7 are in the choir, 5 are in the school band and 2 are in both the choir and the band. Draw a Venn diagram to show this information.

$$P(B') =$$

3. A vet surveys 100 clients. She finds out the following:

25 have dogs

53 have cats

40 have fish

15 have dogs and cats

10 have cats and fish

11 have dogs and fish

7 have dogs, cats and fish

$$P(\text{Dog only}) =$$

$$P(\text{Doesn't own Fish}) =$$

$$P(\text{None of these}) =$$

## 5C Mutually Exclusive & Independent Events

Mutually Exclusive

Independent

1. Events A and B are Mutually Exclusive and  $P(A) = 0.2$  and  $P(B) = 0.4$

Calculate:

a)  $P(A \cup B)$

b)  $P(A \cap B')$

c)  $P(A' \cap B')$

2. Events C and D are Independent and  $P(C) = \frac{1}{3}$  and  $P(D) = \frac{1}{5}$

Calculate:

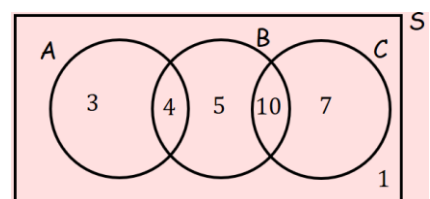
a)  $P(A \cap B)$

b)  $P(A \cap B')$

c)  $P(A' \cap B')$

3. The Venn Diagram shows the number of students in a particular class that watch any of three popular TV programmes, A, B and C.

a) Find the probability that a student watches B or C or both.



b) Determine whether watching A and watching B are statistically independent.

## 5D Tree Diagrams

1. A bag contains 7 green beads and 5 blue beads. A bead is taken at random, the colour recorded and the bead is not replaced. A second is then taken and the colour recorded. Find  $P(1 \text{ Green and } 1 \text{ Blue})$ .