

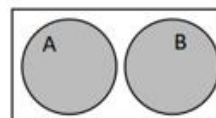
Probability

1

- **Outcome** : an event that can happen in an experiment
- **Sample Space** : list of all the possible outcomes for an experiment

3

Mutually Exclusive events – two or more events which cannot happen at the same time



$$P(A \cap B) = 0$$

$$P(A \cup B) = P(A) + P(B)$$

4

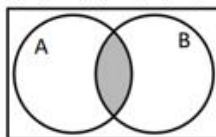
Conditional Probability

When the outcome of the first event affects the outcome of a second event the probability of the second event happening is conditional on the probability of the first event happening

- $P(B|A)$ means that the probability of the first event happening
- $P(B|A) = \frac{P(A \cap B)}{P(A)}$ so $P(A \cap B) = P(A)P(B|A)$
- If the probabilities needed are not stated clearly a tree diagram or Venn diagram may help

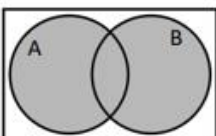
2

$A \cap B$ A and B **both** happen



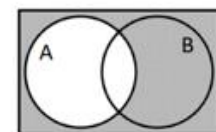
For independent events
 $P(A \cap B) = P(A) \times P(B)$

$A \cup B$ A or B or **both** happen



$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

A' A does **not** happen



$$P(A') = 1 - P(A)$$

Algebra

1

PARTIAL FRACTIONS

Any proper algebraic fractions with a denominator that is a product of linear factors can be written as partial fractions

- Useful for integrating a rational function
- Useful for finding binomial approximations

$$\frac{px+q}{(ax+b)(cx+d)(ex+f)} = \frac{A}{ax+b} + \frac{B}{cx+d} + \frac{C}{ex+f}$$

$$\frac{px+q}{(ax+b)(cx+d)^2} = \frac{A}{ax+b} + \frac{B}{cx+d} + \frac{C}{(cx+d)^2}$$



How do we use Knowledge Organisers in Mathematics?

How can you use knowledge organisers at home to help us?

- **Retrieval Practice:** Read over a section of the knowledge organiser, cover it up and then write down everything you can remember. Repeat until you remember everything.
- **Flash Cards:** Using the Knowledge Organisers to help on one side of a piece of paper write a question, on the other side write an answer. Ask someone to test you by asking a question and seeing if you know the answer.
- **Mind Maps:** Turn the information from the knowledge organiser into a mind map. Then reread the mind map and on a piece of paper half the size try and recreate the key phrases of the mind map from memory.
- **Sketch it:** Draw an image to represent each fact; this can be done in isolation or as part of the mind map/flash card.
- **Teach it:** Teach someone the information on your knowledge organiser, let them ask you questions and see if you know the answers.

How will we use knowledge organisers in Mathematics?

Knowledge organisers will be used before I complete a Learning Check or Common Assessment. I will spend part of the lesson looking over each of the key topics of the half term before completing the Learning Check or Common Assessment.

I will also use these at home to complete my own independent learning and revision of these key topics.

GLUE HERE