



# Introduction to Probability – Notes & Examples

## 1. Understand and use the probability scale from 0 to 1

- Probability is a measure of how likely an event is to happen.
- The probability scale goes from 0 to 1:
  - 0 means the event is **impossible**
  - 1 means the event is **certain**
  - A probability of 0.5 means the event is **equally likely to happen or not happen**

📌 Example:

Tossing a fair coin

- " $P(\text{Heads}) = 0.5$ "
- " $P(\text{Tails}) = 0.5$ "

## 2. Understand and use probability notation

- $P(A)$  = Probability of event A happening
- $P(A')$  or  $P(\text{not } A)$  = Probability of event A **not** happening

## 3. Calculate the probability of a single event

Formula:

$$\text{Probability of an event} = \frac{\text{Number of favorable outcomes}}{\text{Total number of possible outcomes}}$$

📌 Example:


A bag contains 3 red, 2 blue, and 5 green balls.

Total =  $3 + 2 + 5 = 10$  balls

$$P(\text{red}) = \frac{3}{10}$$

#### 4. Understand that the probability of an event not occurring = $1 - \text{probability of it occurring}$

$$P(\text{not } A) = 1 - P(A)$$

 Example:

$$P(B) = 0.8$$

Find  $P(B')$ :

$$P(B') = 1 - 0.8 = 0.2$$

#### Key Points to Remember

- Probabilities must be written as **fractions, decimals, or percentages**  
e.g.  $\frac{1}{4}$ , 0.25, 25%
- The total probability of all possible outcomes = 1
- You might use **tables, graphs, or Venn diagrams** to help calculate or visualize probabilities