Ch 31 Probability (C)

🗣️ All probabilities lie in the range $[0, 1]$.

Complementary events

→ one or the other must occur, each excludes the other

→ The sum of the probabilities of the two complementary events must always equal 1 (*total probability)*.

Calculating theoretical probabilities

→ when the events are equally likely, fair, unbiased

🗣️ When all events are equally likely

$$P\begin{pmatrix}\text{obtaining our}\\ \text{chosen event}\end{pmatrix} = \frac{\text{number of ways the chosen event can occur}}{\text{total number of possibilities}}$$

Calculating experimental probabilities

→ when events are not equally likely

🗣️ $$P\begin{pmatrix}\text{chosen event}\\ \text{occurs}\end{pmatrix} = \frac{\text{number of ways the chosen event occurs}}{\text{total number of times the experiment is repeated}}$$

Independent events

🗣️ If events A and B are independent, then the probabilities of obtaining A and B is given by $P(A \text{ and } B) = P(A) \times P(B)$