



QUESTION WORKBOOK

Probability and Venn diagrams

Statistics · Year 12–13

6 questions · 22 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

- A1** $P(A) = 0.45$ and $P(B) = 0.35$, and A and B are mutually exclusive. Write down $P(A \cap B)$, and find $P(A \cup B)$. [2]

- A2** $P(A) = 0.55$, $P(B) = 0.4$ and $P(A \cup B) = 0.75$. Find $P(A \cap B)$, and determine whether A and B are independent. [3]

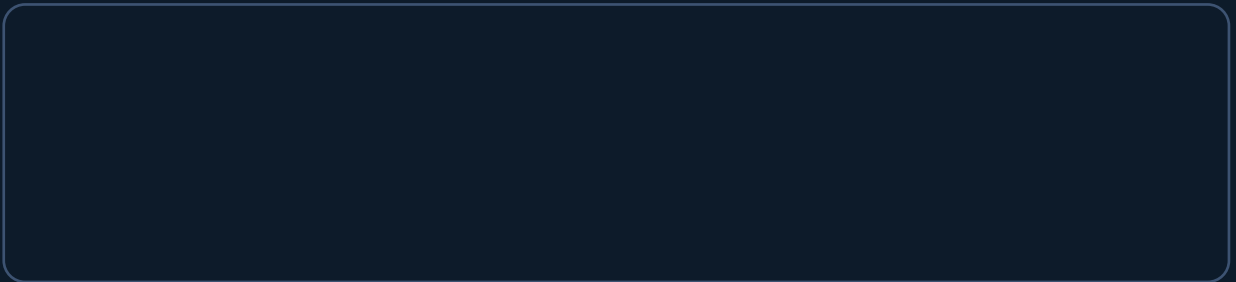
SECTION B · Standard

- B1** Of 100 students, 55 study art, 40 study music, and 20 study both. Draw the Venn diagram in numbers: art only, music only, both, neither. [4]



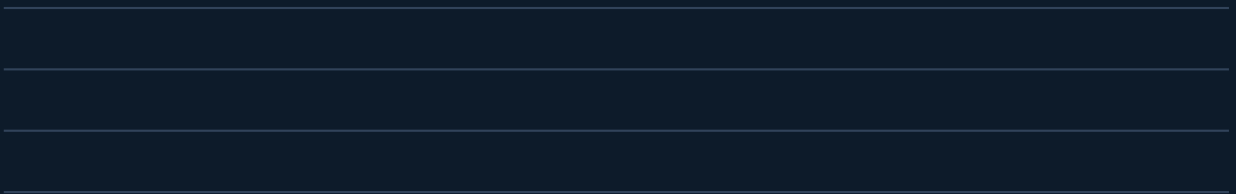
- B2** Using the diagram above, find the probability that a randomly chosen student studies exactly one of the subjects, and the probability that they study neither.

[3]



- B3** Explain the difference between mutually exclusive events and independent events.

[3]



SECTION C · Stretch

- C1** Of 60 people surveyed, 30 like tea, 25 like coffee and 22 like juice. 12 like tea and coffee, 10 like coffee and juice, 8 like tea and juice, and 5 like all three. Find the number who like none of the three drinks, and the probability that a person chosen at random likes exactly one drink.

[7]

