Homework — Part 2: Exam practice (IB past papers)

8 real IB questions (only the parts about today's lesson), Paper 1 and Paper 2. Total: **27 marks**. Paper 1 — no calculator.

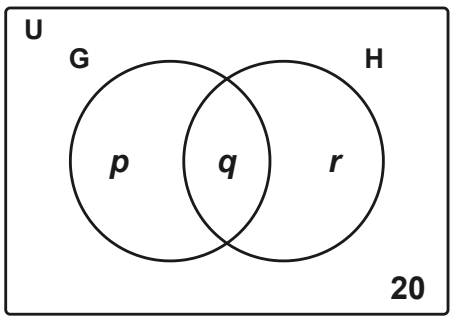
1. Paper 1 IB November 2025

Two events A and B are such that $\mathrm{P}(A) = 0.5$, $\mathrm{P}(B) = 0.6$ and $\mathrm{P}(A \cap B) = 0.4$.

(a) **Find** $\mathrm{P}(A \cup B)$. **[2]**

2. Paper 2 IB May 2026

A school surveys 150 students about their subject selection. From the survey, 90 students study geography (G) and 70 students study history (H). 20 students said they do not study either. This is shown in the following Venn diagram, where $p,\ q,\ r \in \mathbb{Z}^+$.



(a) (i) **Find** the value of q. **[1]**

(ii) **Find** the value of p and the value of r. **[2]**

(b) **Find** the probability that a randomly selected student studies both geography and history. **[1]**

3. Paper 1 IB November 2023

Events A and B are such that $\mathrm{P}(A) = 0.7$, $\mathrm{P}(B) = 0.75$ and $\mathrm{P}(A \cap B) = 0.55$.

(a) **Find** $\mathrm{P}(A \cup B)$. **[2]**

(b) **Hence, or otherwise, find** $\mathrm{P}(A' \cap B')$. **[2]**

4. Paper 2 IB May 2021

At a school, 70% of the students play a sport and 20% of the students are involved in theatre. 18% of the students do neither activity. A student is selected at random.

(a) **Find** the probability that the student plays a sport and is involved in theatre. **[2]**

(b) **Find** the probability that the student is involved in theatre, but does not play a sport. **[2]**

5. Paper 1 IB November 2024

Two events A and B are such that $\mathrm{P}(A) = 0.45$, $\mathrm{P}(B) = 0.65$ and $\mathrm{P}(A \cup B) = 0.8$.

(a) **Find** $\mathrm{P}(A \cap B)$. **[3]**

6. Paper 1 IB November 2023

Events A and B are such that $\mathrm{P}(A) = 0.65$, $\mathrm{P}(B) = 0.75$ and $\mathrm{P}(A \cap B) = 0.6$.

(a) **Find** $\mathrm{P}(A \cup B)$. [2]

(b) **Hence, or otherwise, find** $\mathrm{P}(A' \cap B')$. [2]

7. Paper 1 IB November 2024

Two events A and B are such that $\mathrm{P}(A) = 0.65$, $\mathrm{P}(B) = 0.45$ and $\mathrm{P}(A \cup B) = 0.85$.

(a) **Find** $\mathrm{P}(A \cap B)$. [3]

8. Paper 1 IB May 2026

Consider two events, A and B. It is given that $\mathrm{P}(A \cap B') = \frac{5+x}{24}$, $\mathrm{P}(A \cap B) = \frac{7-x}{12}$ and $\mathrm{P}(A' \cap B) = \frac{1}{6}$, where $0 \leq x \leq 7$.

(a) **Show that** $\mathrm{P}(A) = \frac{19-x}{24}$. [3]

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