

Probability

Use complements, the addition rule and independence to solve probability questions.

Union and intersection

A union means A or B, including both. An intersection means both A and B. Subtract the intersection once in the addition rule to avoid counting it twice.

Independence

Events are independent when knowing one occurred does not change the probability of the other. For independent events, multiply their probabilities to find the intersection.

Formula sheet

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

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$\text{If independent: } P(A \text{ and } B) = P(A) \times P(B)$$

Worked example

A fair die is rolled. A is an even number; B is a number greater than 4. Find $P(A \text{ or } B)$.

1. $A = \{2, 4, 6\}$; $B = \{5, 6\}$.
2. $P(A) = 3/6$, $P(B) = 2/6$ and $P(A \text{ and } B) = 1/6$.
3. $P(A \text{ or } B) = 3/6 + 2/6 - 1/6 = 4/6 = 2/3$.

Try it yourself

1. $P(A) = 0.4$. Find $P(\text{not } A)$.
2. Independent events have probabilities 0.3 and 0.5. Find the probability of both.

Check your answers

1. $1 - 0.4 = 0.6$.
2. $0.3 \times 0.5 = 0.15$.

Common mistake

Mutually exclusive events and independent events mean different things.

Source and scope

Original Pass Papers ZA revision notes; curriculum reference linked below.

Updated 2026-10-28. Selected revision topics, not an official examination paper. Check your teacher's scope.

Official DBE curriculum / textbook reference

Read online: <https://passpapers.co.za/study/revision/grade-12-mathematics-probability>