

Probability of Complementary Events

Chapter 14: Probability · Topic 2

Key Concept

For example, if the probability of rain tomorrow is 0.3 (30%), the probability of no rain is $1 - 0.3 = 0.7$ (70%), without needing any additional separate calculation. This complementary relationship is especially useful in problems where directly calculating the probability of 'not something happening' would be complex, but the probability of the event itself is straightforward to determine directly.

Quick Revision Notes

- Complementary events: $P(E) + P(\text{not } E) = 1$.
- If $P(E)=0.3$, then $P(\text{not } E) = 1-0.3 = 0.7$.
- This shortcut avoids needing to separately calculate the complement's probability directly.
- Useful when calculating 'not happening' directly would be more complex than the event itself.

Practice Questions

- 1 A bag has 5 red and 3 blue balls. Find the probability of NOT drawing a red ball.
- 2 If the probability of an event is 0.65, find the probability of its complement.
- 3 Explain a situation where calculating a complementary probability is easier than calculating the event's probability directly.