Knowledge Organiser
VENN DIAGRAMS

Key Concepts

Venn diagrams show all possible relationships between different sets of data.

Probabilities can be derived from Venn diagrams. Specific notation is used for this:

P(A ∩ B) = Probability of A **and** B

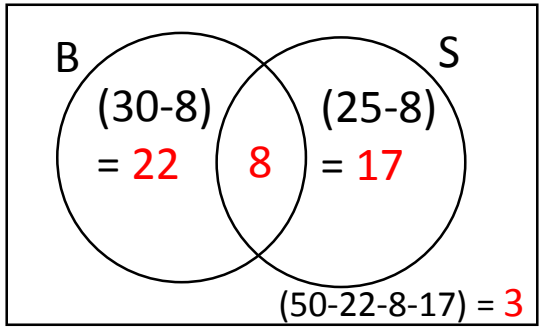
P(A ∪ B) = Probability of A **or** B

P(A') = Probability of **not** A

Example

Out of 50 people surveyed:

30 have a brother
25 have a sister
8 have both a brother and sister



a) Complete the Venn diagram

b) Calculate:

i) P(A ∩ B) $= \frac{8}{50}$

ii) P(A ∪ B) $= \frac{47}{50}$

iii) P(B') $= \frac{20}{50}$

iv) The probability that a person with a sister, does not have a brother.

$= \frac{8}{25}$

40 students were surveyed:

20 have visited France
15 have visited Spain
10 have visited both France and Spain

a) Complete a Venn diagram to represent this information.

b) Calculate:

i) P(F ∩ S) ii) P(F ∪ S) iii) P(S')

iv) The probability someone who has visited France, has not gone to Spain.

ANSWERS: b) i) 10/40 ii) 25/40 iii) 25/40 iv) 20/40 = 1/2

Key Words
Venn diagram
Union
Intersection
Probability
Outcomes

hegartymaths

372-388, 391