Probability from Venn diagrams using further set notation (3 sets)
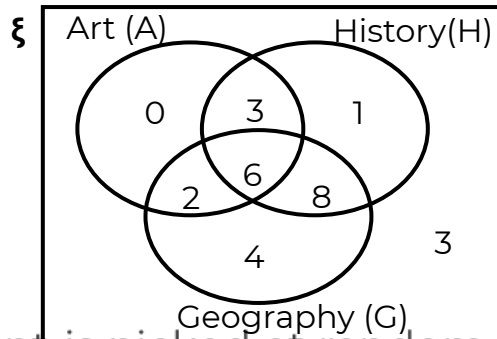
Maths

Mrs Dennett

Probability from Venn diagrams (3 sets)
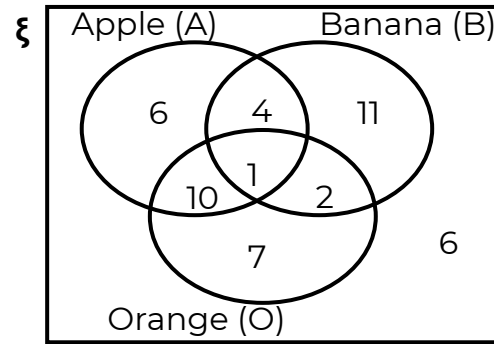
1. The Venn diagram shows students option choices in year 10.

A student is picked at random.
a)   Work out P(A ∩ H ∩ G)
b)   Work out P(A ∪ G)
c)   Work out P(A ∩ G|G)
d)   Work out P(A ∩ G|H)

2. The Venn diagram shows peoples choices of favourite fruit.

A person is picked at random.
a)   Work out P(A' ∩ B)
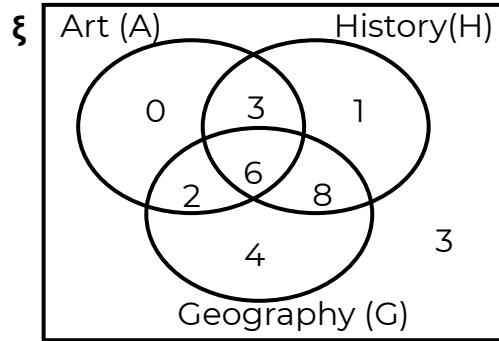b)   Work out P(A' ∩ B|B)
c)   Work out P(A ∩ O|B)
d)   Work out P(A ∪ O|B)

Answers

Probability from Venn diagrams (3 sets)

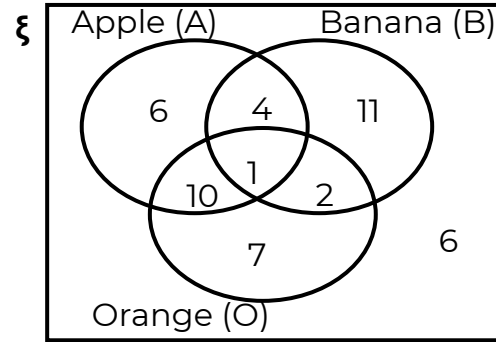1. The Venn diagram shows students option choices in year 10.

ξ Art (A)   History(H)

0   3   1
   6
2   8
   4   3
Geography (G)

A student is picked at random.
a) Work out P(A ∩ H ∩ G) $\frac{6}{27}$
b) Work out P(A ∪ G)
c) Work out P(A ∩ G|G) $\frac{23}{27}$ $\frac{8}{20}$
d) Work out P(A ∩ G|H) $\frac{6}{18}$

2. The Venn diagram shows peoples choices of favourite fruit.

ξ Apple (A)   Banana (B)

6   4   11
   1
10   2
   7   6
Orange (O)

A person is picked at random.
a) Work out P(A' ∩ B) $\frac{13}{47}$
b) Work out P(A' ∩ B|B) $\frac{13}{18}$
c) Work out P(A ∩ O|B) $\frac{1}{18}$
d) Work out P(A ∪ O|B) $\frac{7}{18}$