Find probabilities from Venn Diagrams including basic set notation

Maths

Mrs Dennett

Find probabilities from Venn Diagrams

1. 15 children were asked if they played cricket or badminton.

7 children played both, 3 children played neither and 9 played cricket.

a) Draw a Venn diagram to represent this information.

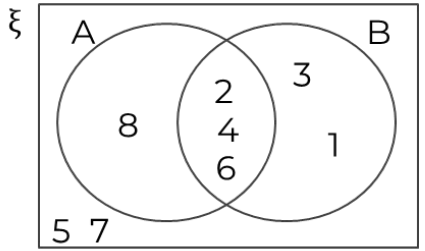
b) A child is chosen at random. Calculate the P(A child who plays badminton is chosen).

2. The Venn diagram represents the following sets.

ξ = { 1,2,3,4,5,6,7,8 }

A = { 2,4,6,8 }

B = { 1,3 }

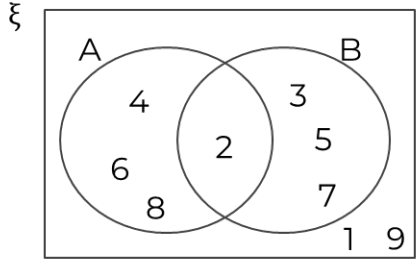


a) Calculate the P(A ∪ B).

b) Calculate P (A')

Find probabilities from Venn Diagrams

3. Here is a Venn diagram.

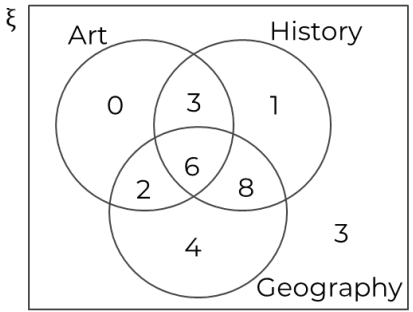


True or false?

- The probability of choosing a number from set A ∩ B is $\frac{2}{9}$
- The probability of choosing a number from set A ∩ B is $\frac{1}{9}$

What mistake has been made?

4. This Venn diagram shows the number of students who study art, history and geography.

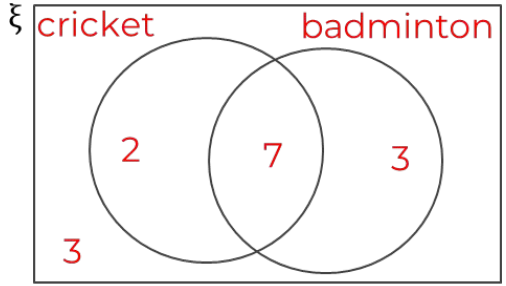


A student is chosen at random.
Work out
a) P(Geography ∩ History)
b) P(Art ∩ History)
c) P(Art ∩ Geography ∩ History)

Answers

Find probabilities from Venn Diagrams

1.



a) Draw a Venn diagram to represent this information.

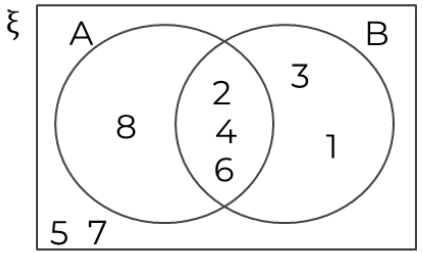
b) A child is chosen at random. Calculate the P(A child who plays badminton is chosen). $\frac{10}{15}$

2. The Venn diagram represents the following sets.

ξ = { 1,2,3,4,5,7,8 }

A = { 2,4,6,8 }

B = { 1,3 }

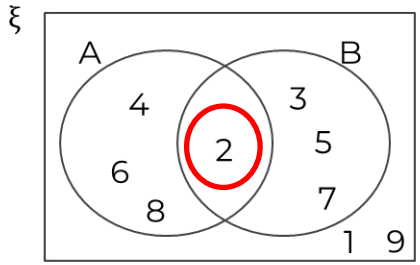


a) Calculate the P(A ∪ B). $\frac{6}{8}$

b) Calculate P (A') $\frac{4}{8}$

Find probabilities from Venn Diagrams

3. Here is a Venn diagram.



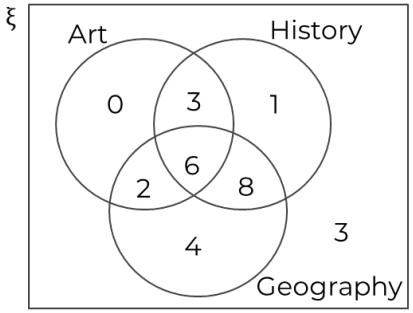
True or false?

- The probability of choosing a number from set A ∩ B is $\frac{2}{9}$ False
- The probability of choosing a number from set A ∩ B is $\frac{1}{9}$ True

What mistake has been made?

There is only 1 number in the intersection

4. This Venn diagram shows the number of students who study art, history and geography.



A student is chosen at random.

Work out

a) P(Geography ∩ History) $\frac{14}{27}$

b) P(Art ∩ History) $\frac{9}{27}$

c) P(Art ∩ Geography ∩ History) $\frac{6}{27}$