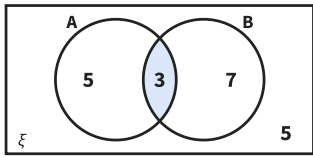


Venn Diagrams: Set Notation

ANSWERS

1

The Venn diagram shows the number in each region. One is picked at random. Find $P(A \cap B)$.

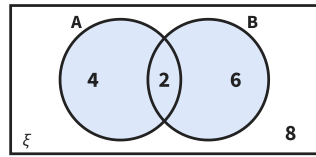


$$P(A \cap B) = \frac{3}{20} \quad \begin{array}{l} \text{in the shaded region} \\ \text{in the whole diagram} \end{array}$$

Answer $\frac{3}{20}$

2

The Venn diagram shows the number in each region. One is picked at random. Find $P(A \cup B)$.

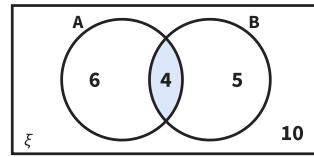


$$P(A \cup B) = \frac{12}{20} \quad \begin{array}{l} \text{in the shaded region} \\ \text{in the whole diagram} \end{array}$$

Answer $\frac{3}{5}$

3

The Venn diagram shows the number in each region. Shade $A \cap B$ on the diagram. One is picked at random. Find $P(A \cap B)$.

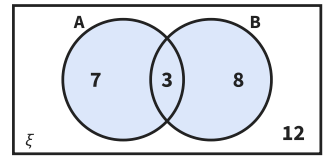


$$P(A \cap B) = \frac{4}{25} \quad \begin{array}{l} \text{in the shaded region} \\ \text{in the whole diagram} \end{array}$$

Answer $\frac{4}{25}$

4

The Venn diagram shows the number in each region. Shade $A \cup B$ on the diagram. One is picked at random. Find $P(A \cup B)$.

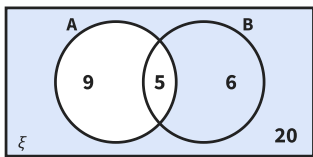


$$P(A \cup B) = \frac{18}{30} \quad \begin{array}{l} \text{in the shaded region} \\ \text{in the whole diagram} \end{array}$$

Answer $\frac{3}{5}$

5

The Venn diagram shows the number in each region. One is picked at random. Find $P(A')$.

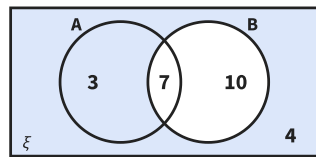


$$P(A') = \frac{26}{40}$$

Answer $\frac{13}{20}$

6

The Venn diagram shows the number in each region. One is picked at random. Find $P(B')$.

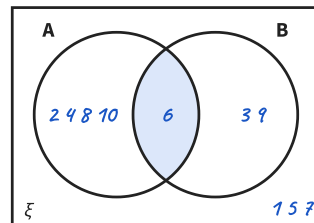


$$P(B') = \frac{7}{24}$$

Answer $\frac{7}{24}$

7

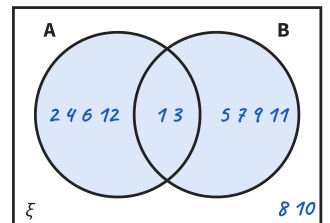
ξ = whole numbers from 1 to 10.
A = even numbers. B = multiples of 3.
Fill in the Venn diagram. One is picked at random. Find $P(A \cap B)$.



Answer $\frac{1}{10}$

8

ξ = whole numbers from 1 to 12.
A = factors of 12. B = odd numbers.
Fill in the Venn diagram. One is picked at random. Find $P(A \cup B)$.



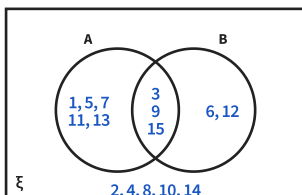
Answer $\frac{5}{6}$

Venn Diagrams: Set Notation *further practice*

ANSWERS

9

ξ = whole numbers from 1 to 15.
A = odd numbers. B = multiples of 3.
Write each number in the Venn diagram.
One number is chosen at random.
Find $P(A \cup B)$.

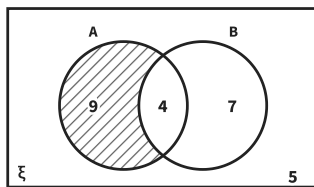


10 numbers are in $A \cup B$

Answer $\frac{2}{3}$

10

The Venn diagram shows the number in each region. One is picked at random. Find $P(A \cap B')$.

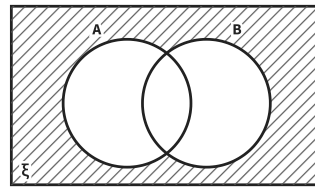


in A and not in B: 9 out of 25

Answer $\frac{9}{25}$

11

Write down the set notation for the shaded region.

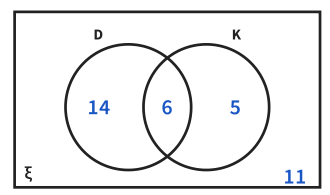


outside A and outside B, also $A' \cap B'$

Answer $(A \cup B)'$

12

ξ = 36 guests at a party. D = guests who danced. K = guests who sang karaoke.
20 danced, 11 sang karaoke and 6 did both.
(a) Complete the Venn diagram. (b) A guest is chosen at random. Find $P(D')$.

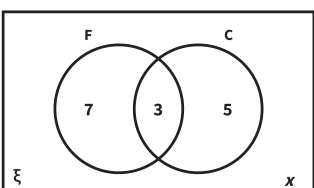


$5 + 11 = 16$ are not in D, so $\frac{16}{36}$

(b) $\frac{4}{9}$

13

ξ = the cakes in a bakery window. F = cakes with fruit. C = cakes with chocolate.
x cakes have neither. A cake is chosen at random. $P(F \cup C) = \frac{3}{4}$. Find x.

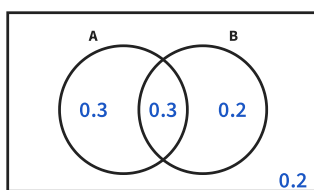


15 is $\frac{3}{4}$ of 20

Answer $x = 5$

14

$P(A) = 0.6$, $P(B) = 0.5$ and $P(A \cap B) = 0.3$.
Write the probabilities in the Venn diagram.
Find $P(A' \cap B')$.



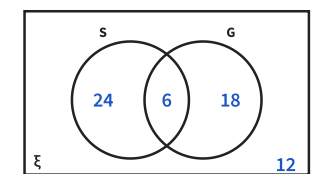
$1 - (0.3 + 0.3 + 0.2)$

Answer 0.2

15

ξ = 60 members of a sports centre.
S = members who swim. G = members who use the gym.
30 swim, 24 use the gym and 12 do neither.

(a) Complete the Venn diagram. (b) A member is chosen at random. Find $P(S \cap G)$.

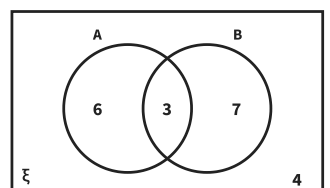


$30 + 24 + 12 = 66$, so 6 are in both

(b) $\frac{1}{10}$

16

Jess says $P(A \cup B) = \frac{9}{20} + \frac{10}{20} = \frac{19}{20}$.
Is Jess right? Explain.



she has counted the 3 in $A \cap B$ twice

Answer No, it is $\frac{4}{5}$