

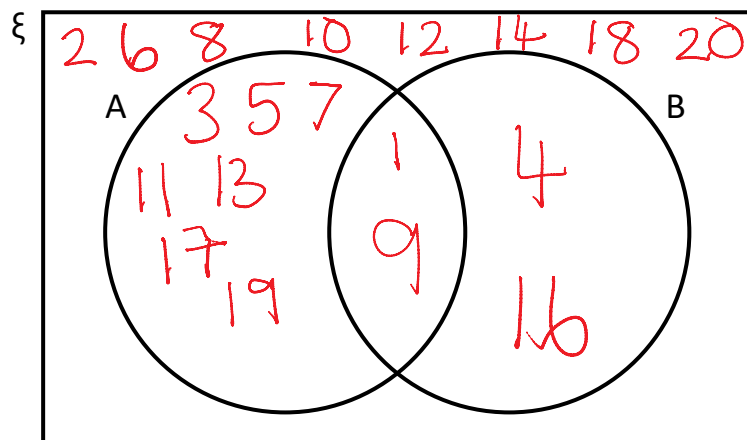
Venn diagrams

1. $\xi = \{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16\}$

A: Odd numbers 1,3,5,7,9,11,13,15,17,19

B: Square numbers 1,4,9,16

a) Complete the Venn diagram



b) A number is picked at random

Find $P(A \cap B)$ $\frac{2}{16}$

(4 marks)

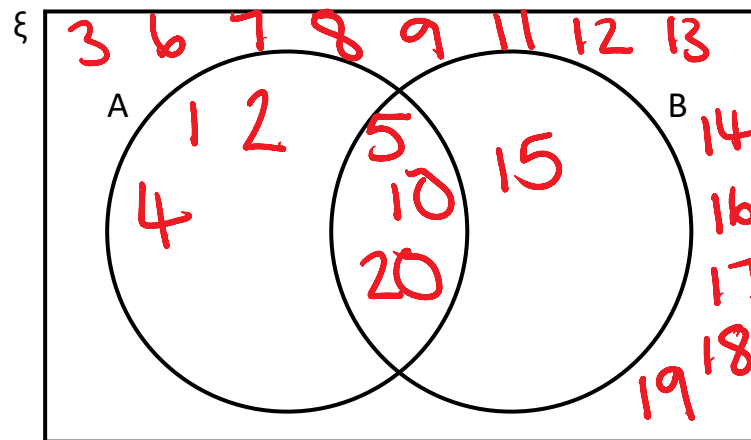
Venn diagrams

2. $\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$

A: Factors of 20 **1, 2, 4, 5, 10, 20**

B: Multiples of 5 **5, 10, 15, 20**

a) Complete the Venn diagram



b) A number is chosen at random

Find $P(A \cup B)$ **$\frac{7}{20}$**

(4 marks)

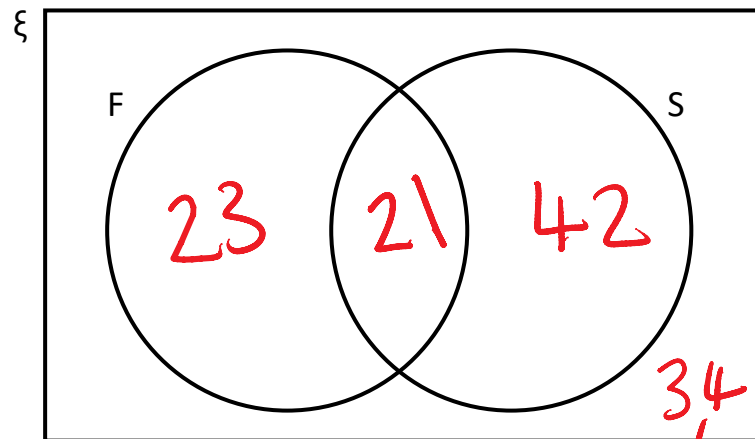
Venn diagrams

3. There are 120 students in Year 10.
The students can pick to study French, Spanish, both or neither.
21 students study both.
63 students study Spanish.
44 students study French.
The rest study neither.

$$63 - 21 = 42$$

a) Complete the Venn diagram

$$44 - 21 = 23$$



$$120 - 42 - 21 - 23$$

- b) A student is chosen at random.
What is the probability the student only studies Spanish?

$$42/120$$

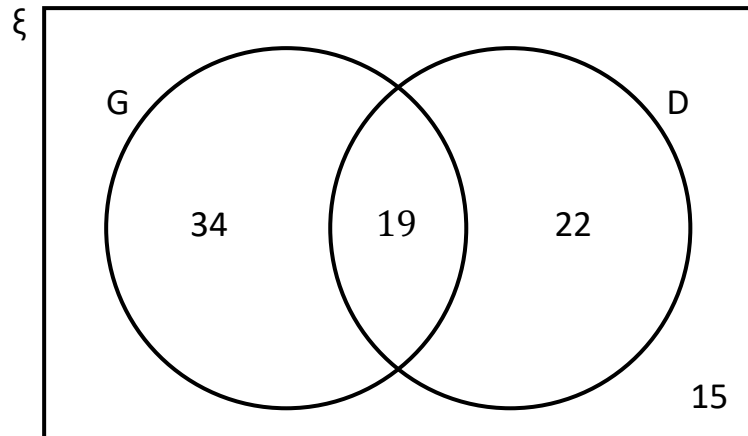
(4 marks)

Venn diagrams

4. 90 students are advised to learn how to play an instrument.

They can learn to play the guitar or drums.

The information is shown in the Venn diagram below.



- a) How many students learn to play the guitar?

$$34 + 19 = 53$$

- b) How many students learn to play the drums?

$$19 + 22 = 41$$

- c) How many students don't learn how to play an instrument?

$$15$$

(3 marks)

Venn diagrams

5. 260 people go to a sports centre.
People either go to the gym, swim or both.

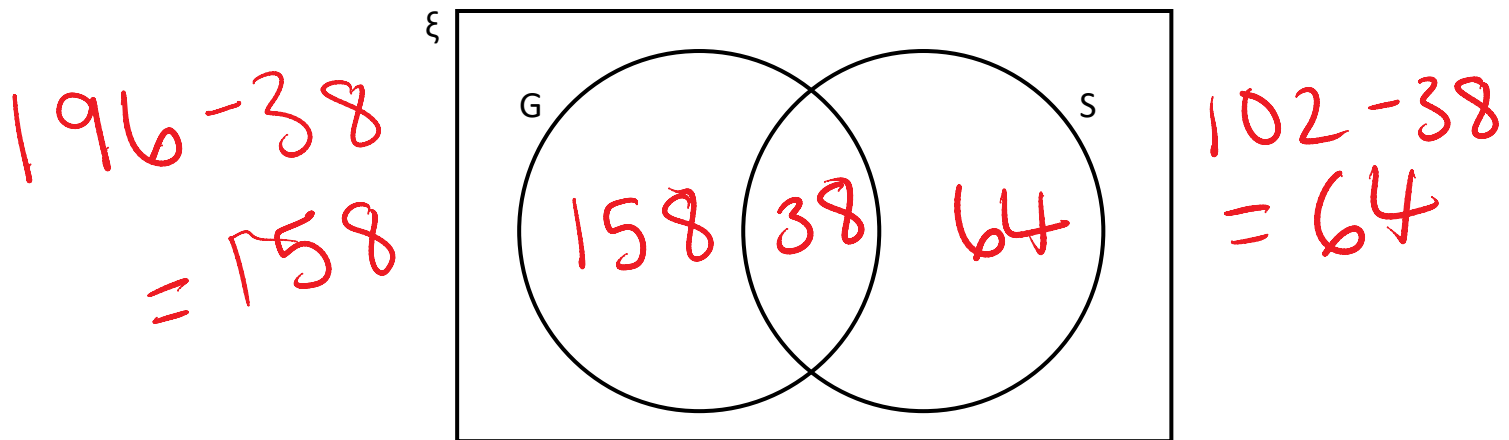
196 people go to the gym.

102 people swim.

$$196 + 102 = 298$$

$$298 - 260 = 38$$

- a) Represent this information in the Venn diagram



- b) How many people go to the gym and swim?

38

(4 marks)

Venn diagrams

6. 80 people are asked if they prefer cats or dogs

C: People who prefer a cat

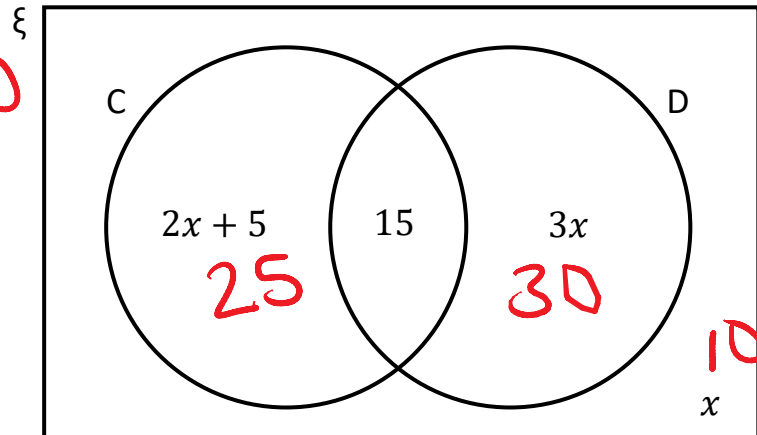
D: People who prefer a dog

$$2x + 5 + 15 + 3x + x = 80$$

$$6x + 20 = 80$$

$$6x = 60$$

$$x = 10$$



- a) How many people's favourite animal is a cat?

$$25 + 15 = 40$$

- b) How many people's favourite animal is a dog?

$$15 + 30 = 45$$

(5 marks)