Understand and use the union of sets
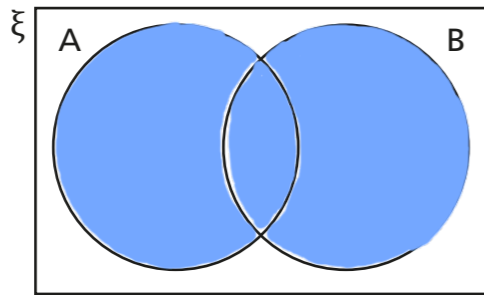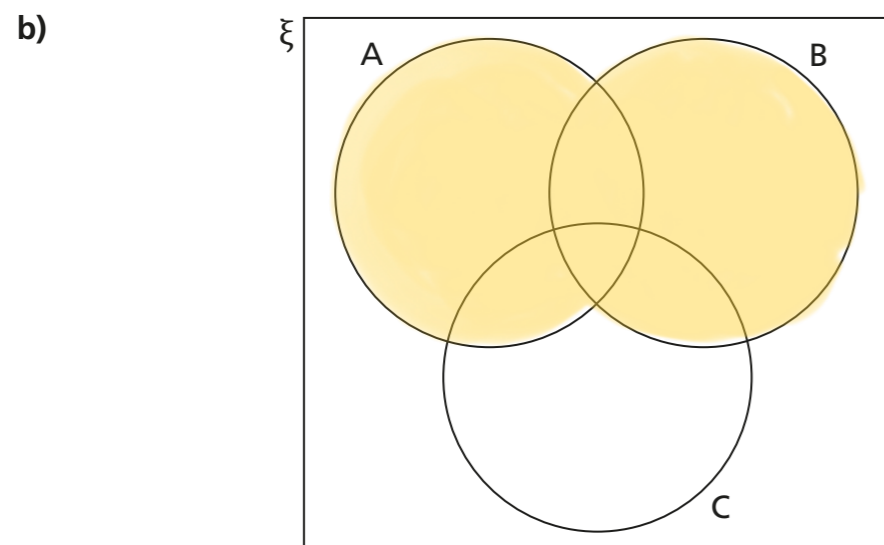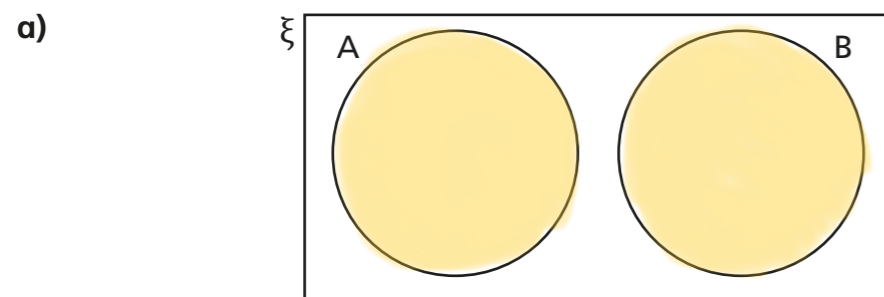
1 Here are two sets: A and B.

a) Shade the region that represents A ∪ B.

b) Describe what A ∪ B means.

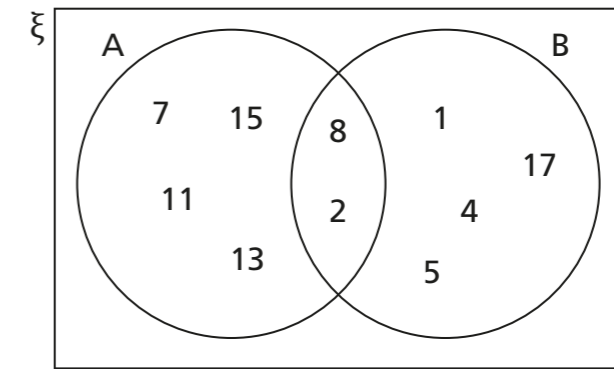The set that contains elements that are in set A
OR set B or both.

2 Shade the regions that represent A ∪ B.

a)

b)

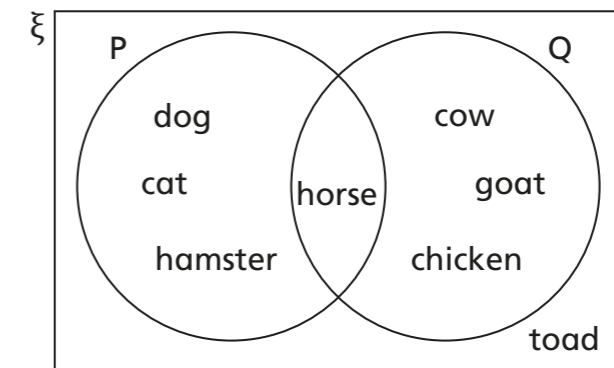**3** a)

Write the elements of A ∪ B.

7, 11, 15, 13, 8, 2, 1, 4, 5, 17

b)
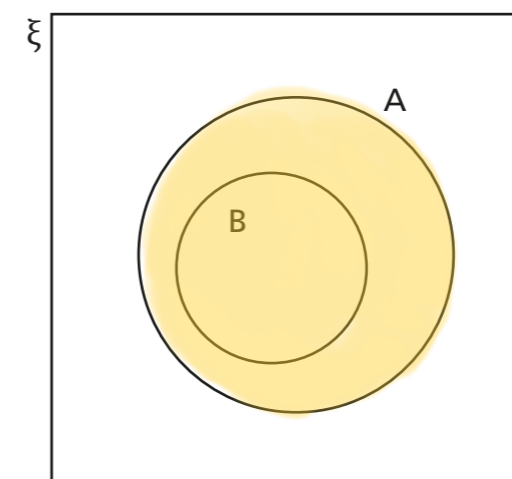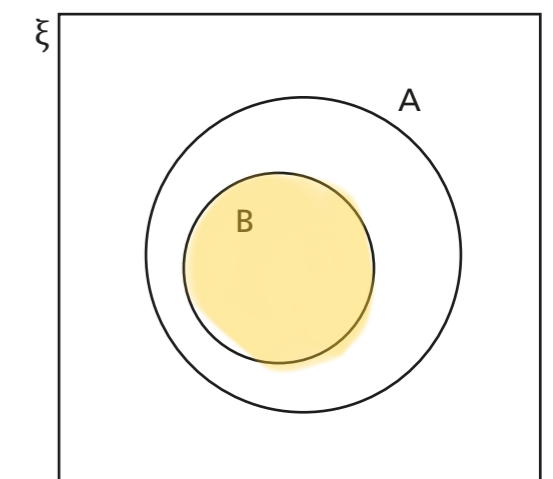

Write the element of P ∪ Q.

dog, cat, hamster, horse, cow, goat, chicken

4 Shade the regions.

a) A ∪ B

b) A ∩ B

5 A is the set of children who went to a theme park on a school trip.

B is the set of children who went to a museum on a school trip.

A = {Whitney, Filip, Rosie, Ron, Nijah, Brett, Amir}

B = {Eva, Ron, Kim, Tom, Filip, Huan, Amir, Mo}

a) List the elements of A ∪ B.

Whitney, Filip, Rosie, Ron, Nijah, Brett, Amir, Eva, Kim, Tom, Huan, Mo

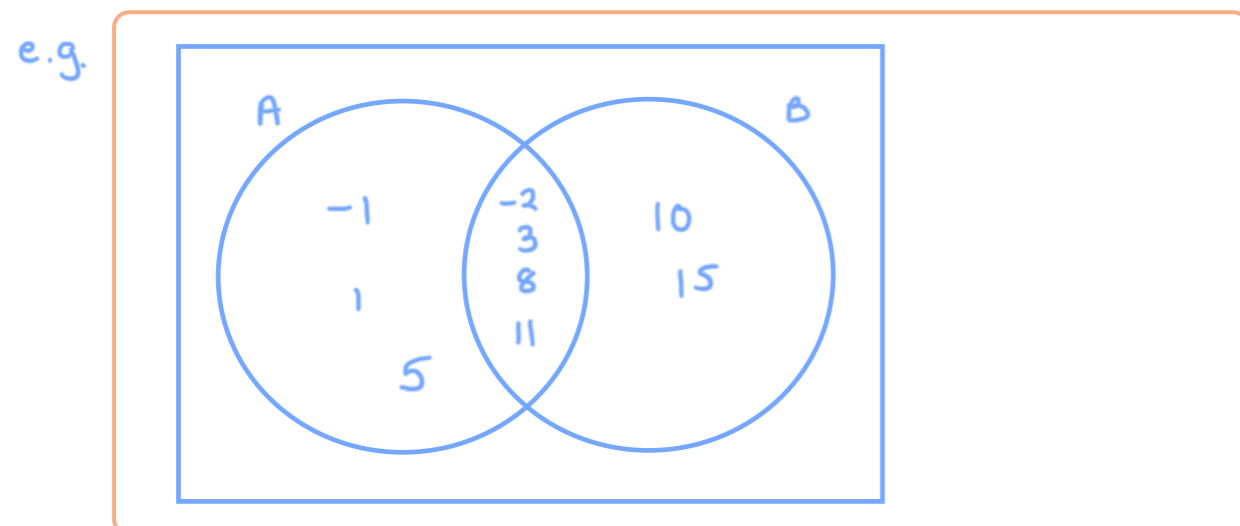**b)** The teacher says that A ∪ B is the children who went to both the theme park and the museum.

Explain why the teacher is incorrect.

It's the children who went to the themepark or the museum or both.
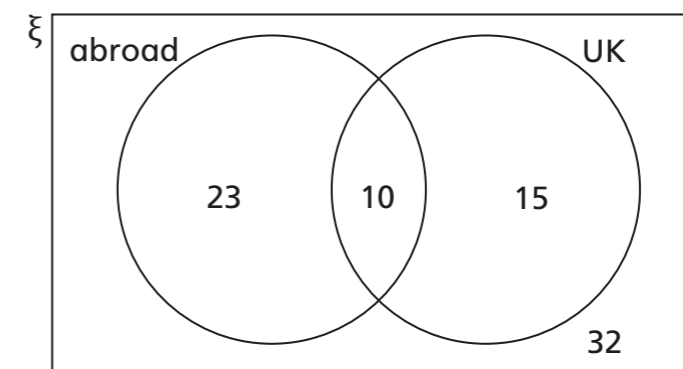
6

> A ∩ B = {–2, 3, 8, 11}
>
> A ∪ B = {–2, –1, 1, 3, 5, 8, 10, 11, 15}

Draw a possible Venn diagram to represent A and B.

e.g.

A   B
–1   –2
      3   10
1   8   15
      11
   5

Compare your diagram to a partner's.

What is the same and what is different?

7 80 families were asked if they went on holiday abroad or in the UK.

ξ   abroad   UK

23   10   15

32

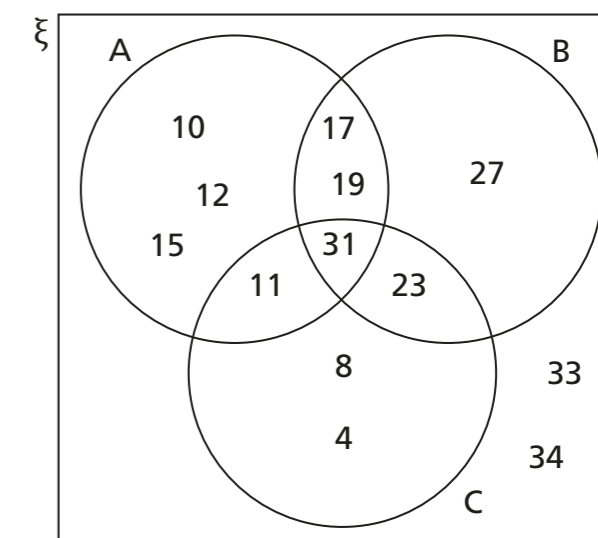**a)** How many families went on holiday abroad?   **33**

b) How many families went on holiday either abroad or in the UK?   **48**

c) How many families went on holiday abroad and in the UK?   **10**

8 Here are three sets: A, B and C.

ξ   A   B
10   17
12   19   27
15   31
11   23
8   33
4   34
C

List the elements of:

a) A ∪ B = { 10,12,15,11,17,19,31, 27,23 }

b) A ∪ C = { 10,12,15,17,19,11,31,23,8,4 }

c) B ∪ C = { 17,19,31,23,27,11,8,4 }

d) A ∪ B ∪ C = { 10,12,15,17,19,27,11,31,23,8,4 }

e) (A ∩ B) ∪ C = { 17,19,11,31,23,8,4 }

f) (A ∪ B) ∩ C = { 31,11,23 }