

Name: _____

GCSE (1 – 9)

Venn Diagrams

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The marks for each question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

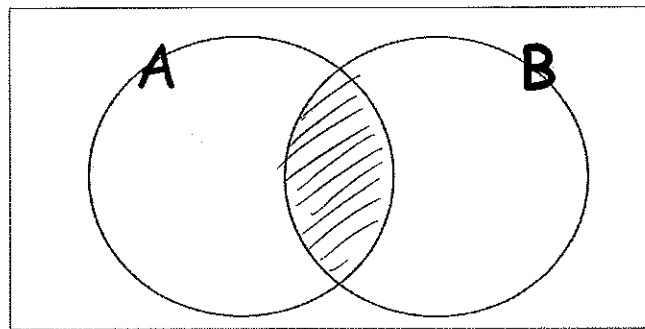
Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1. Given that $P(A)=0.9$ find: $P(A')$

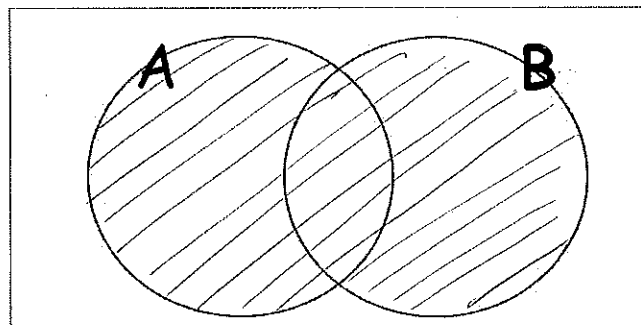
.....0.1..... (1)

2. Shade the region that represents: $P(A \cap B)$



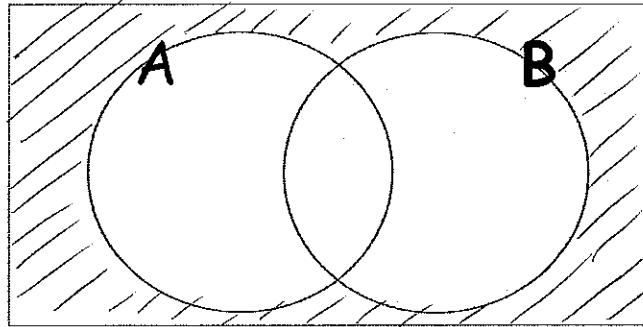
(1)

3. Shade the region that represents: $P(A \cup B)$



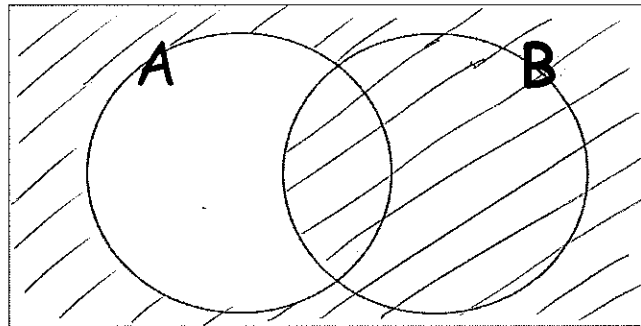
(1)

4. Shade the region that represents: $P(A' \cap B')$



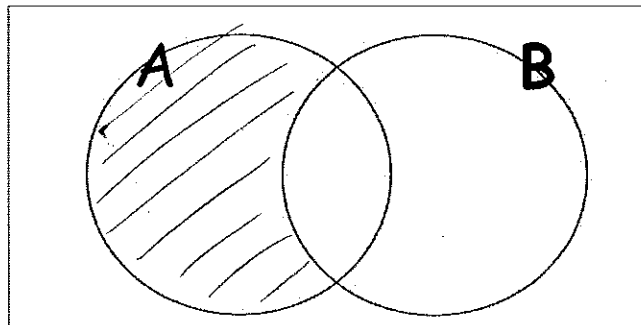
(1)

5. Shade the region that represents: $P(A' \cup B)$



(1)

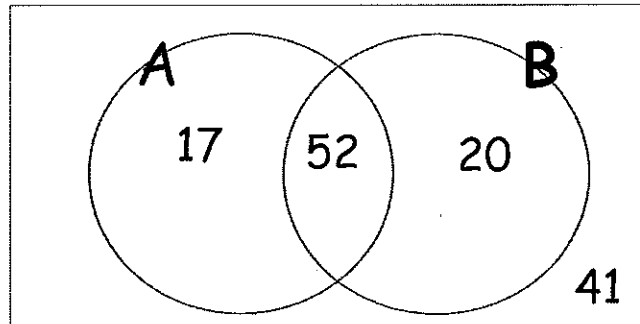
6. Shade the region that represents: $P(A \cap B')$



(1)

7. All members of a club were asked if they eat apples (A) and if they eat bananas (B)

The information was represented on a Venn Diagram



a) How many people are in the club?

$$\dots\dots 130 \dots\dots (1)$$

A member of the club is selected at random

b) What is the probability they eat both apples and bananas?

$$\frac{52}{130}$$

$$\dots\dots \frac{52}{130} \dots\dots (1)$$

Given that a person selected does not eat bananas

c) Find the probability they do not eat apples

$$\dots\dots \frac{41}{58} \dots\dots (2)$$

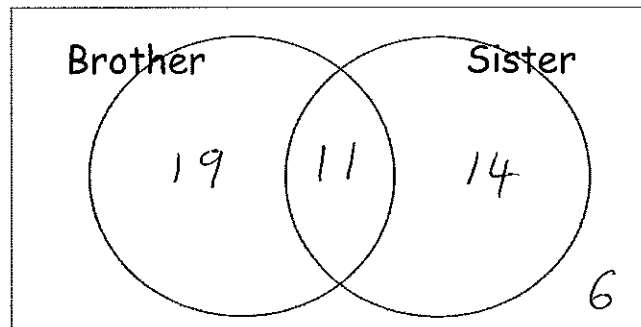
8. Out of 50 people surveyed:

30 have a brother

25 have a sister

6 have neither a brother or a sister

a) Use this information to complete the Venn Diagram



(3)

Given that a person selected has a brother

b) Find the probability they also have a sister

$$\frac{11}{30} \dots \dots \dots (2)$$

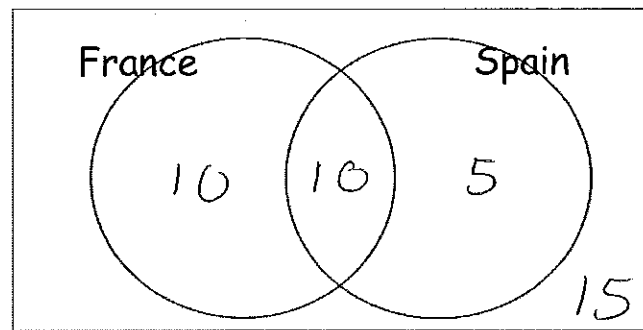
9. 40 students were surveyed:

20 have visited France

15 have visited Spain

10 have visited both France and Spain

a) Use this information to complete the Venn Diagram



(3)

Given that a person selected has visited France

b) Find the probability they have not visited Spain

$$\frac{10}{20} \dots \frac{1}{2} \dots (2)$$

10. Sami asked 50 people which drinks they liked from tea, coffee and milk.

All 50 people like at least one of the drinks

19 people like all three drinks.

16 people like tea and coffee but do not like milk.

21 people like coffee and milk.

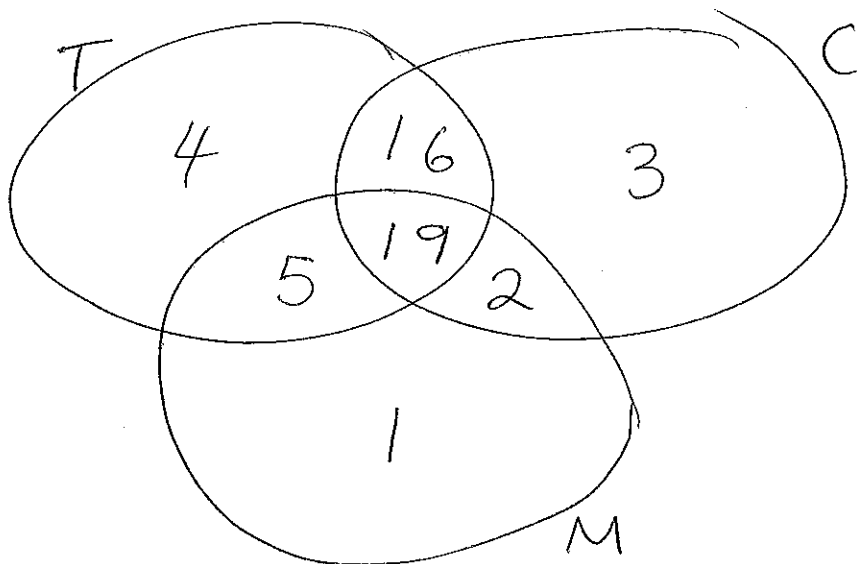
24 people like tea and milk.

40 people like coffee.

1 person likes only milk.

Sami selects at random one of the 50 people.

a) Work out the probability that this person likes tea.



$$\frac{44}{50} \dots \dots \dots (4)$$

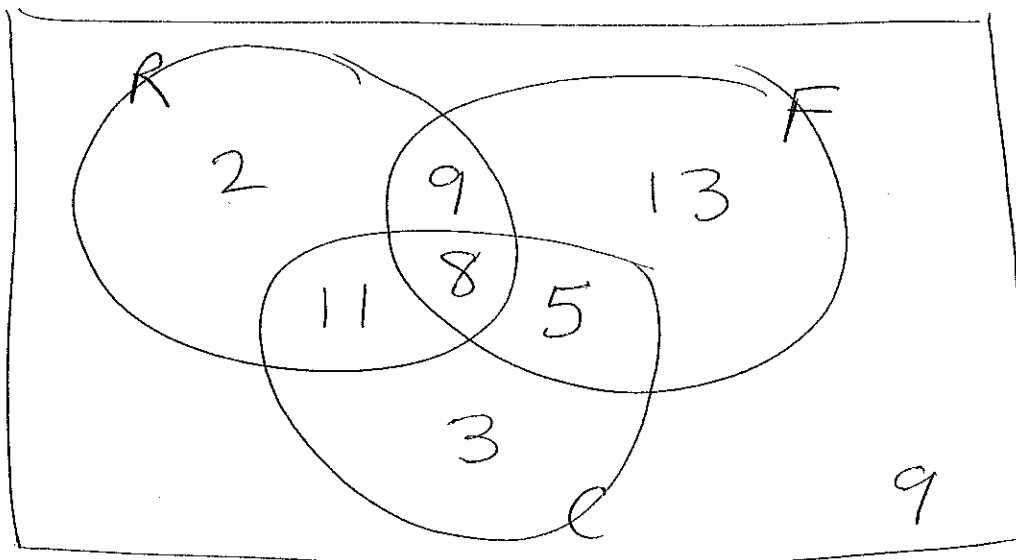
b) Given that the person selected at random from the 50 people likes tea, find the probability that this person also likes exactly one other drink.

$$\frac{21}{44} \dots \dots \dots (2)$$

11. Sami asked 60 people which sports they liked from rugby, football and cricket.

- 8 people like all three sports.
- 17 people like rugby and football.
- 13 people like football and cricket.
- 19 people like rugby and cricket.
- 35 people like football.
- 27 people like cricket
- 30 people like rugby.

a) How many people liked neither rugby or football or cricket?



.....9..... (4)

b) Given that the person selected at random from the 60 people likes cricket find the probability that this person also like rugby

$\frac{19}{27}$ (2)