Name: _____

ASM Tuition Academy

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 you're 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.
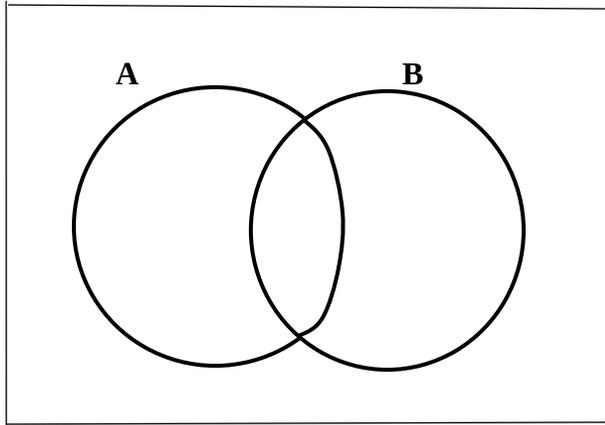
Advice:

- Read each question carefully before you start to answer it.
- Keep an eye on time.
- Try to answer every question.
- Check your answers if you have time at the end.
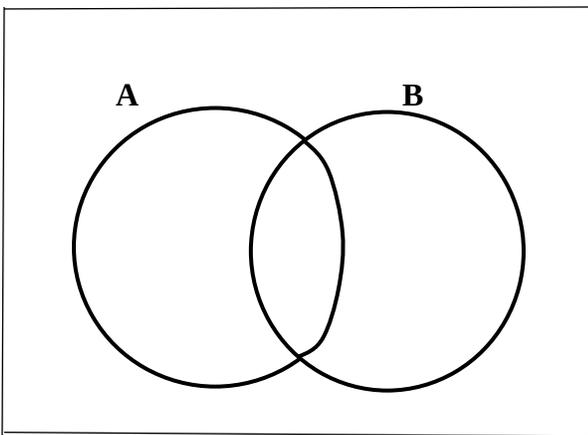
1. **Given that P(A) = 0.7, find p(A′)**

_____

(Total for question 1 is 1 mark)
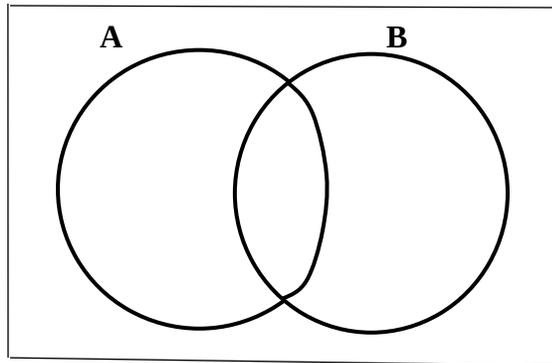
2. **Shade the region that represent (A ∪ B).**

(Total for question 2 is 1 mark)
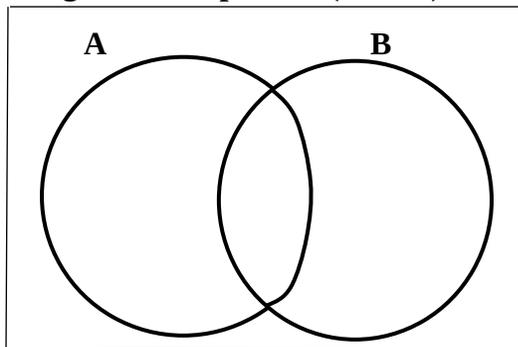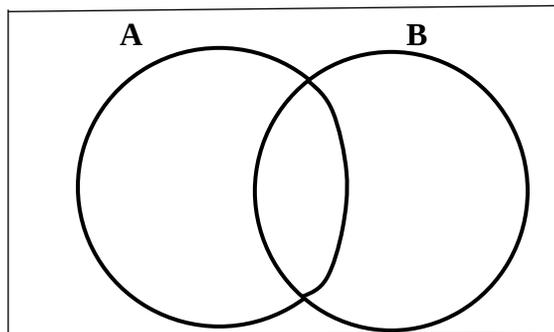
3. **Shade the region that represent (A ∩ B).**
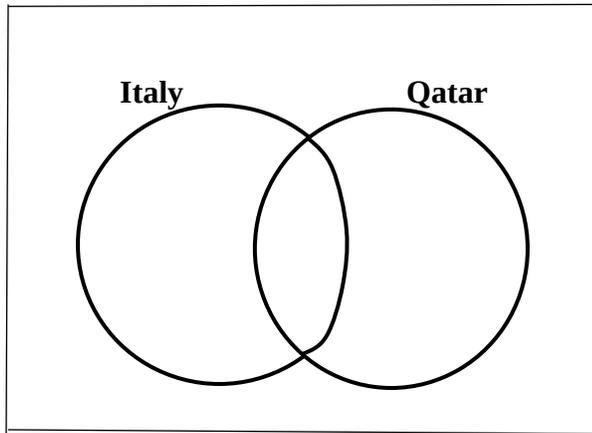

(Total for question 3 is 1 mark)

4. **Shade the region that represent (A′ ∪ B′).**

5. **Shade the region that represent (A′ ∪ B).**

6. **Shade the region that represent (A ∩ B′).**

7. **45 students were surveyed:**
    22 have visited Italy.
    16 have visited Qatar.
    12 have visited both Italy and Qatar.

    Use this information to complete the Venn diagram.

8. **Out of 60 people surveyed:**
    34 have a brother.
    26 have a sister.
    7 have either a brother or a sister.

    Use this information to complete the Venn diagram.
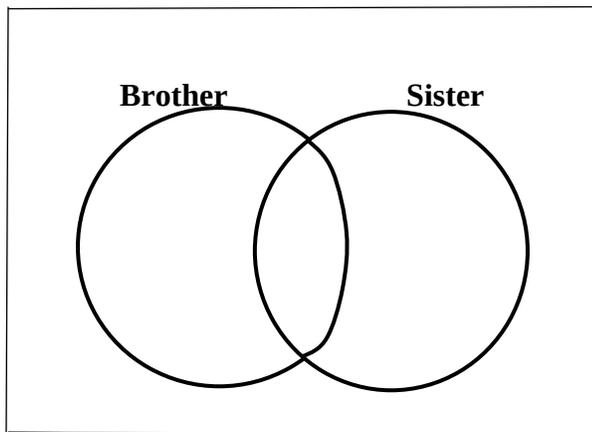
9. **Biya asked 40 people which drinks they liked from tea, coffee and milk.**
   All 40 people like at least one of the drinks.
   16 people like all three drinks.
   14 people like tea and coffee but don't like milk.
   20 people like coffee and milk.
   22 people like tea and milk.
   30 people like coffee.
   1 person like only milk.
   Complete the Venn diagram.
   Haya select at random one of the 40 people.
   Work out the probability that this person like tea.

10. **Faisu asked 65 people which meat they liked from chicken mutton and beef.**
    10 people like all three meats.
    18 people like chicken and mutton.
    14 people like mutton and beef.
    20 people like chicken and beef.
    32 people like mutton.
    28 people like beef.
    30 people like chicken.
    Complete the Venn diagram and
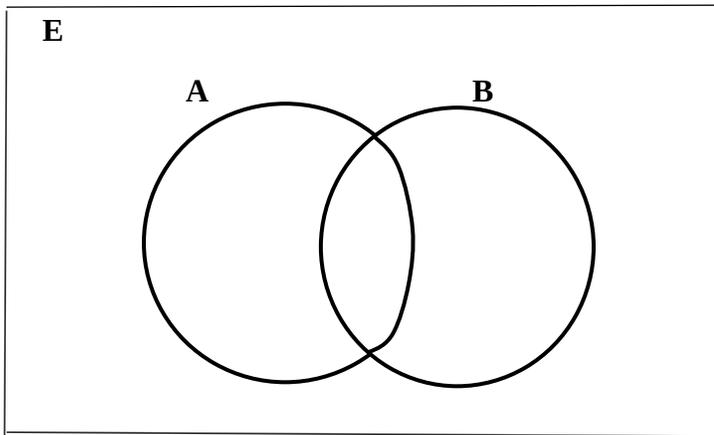   **How many people like neither chicken or mutton or beef?**

11. E = {even numbers between 1 and 34}
   A = {2, 4, 6, 10, 14, 18, 24}
   B= {6, 12, 16, 18, 24, 32}

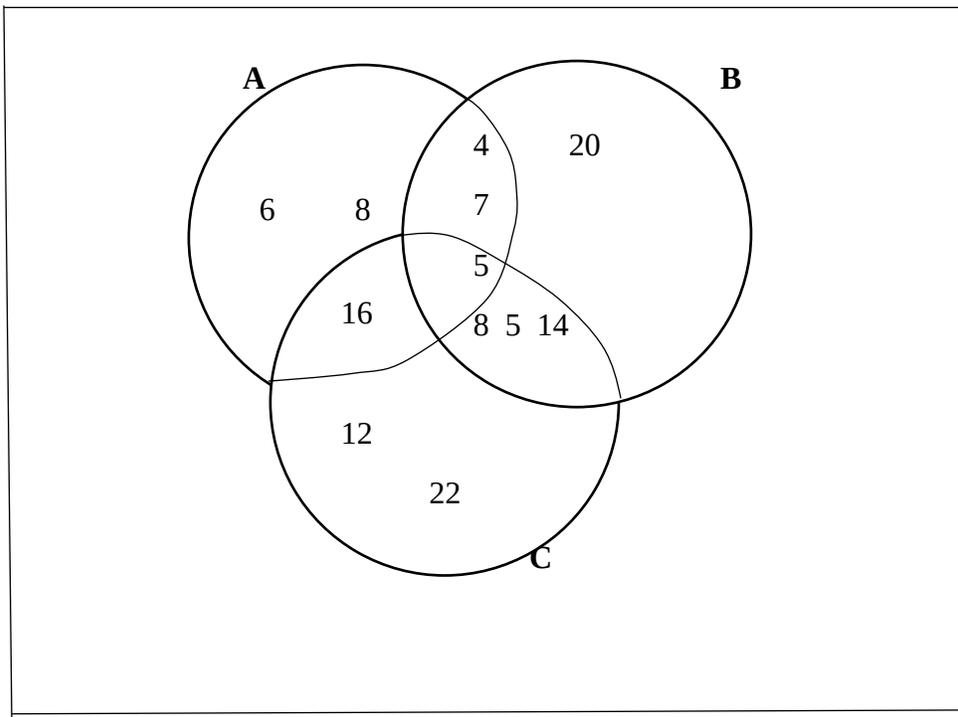   a) **Complete the Venn diagram to represent this information.**

E

A   B

   A number is chosen at random from the universal set, E
   b) **What is the probability that the number is in the set A $\cup$ B?**

_____

(Total for question 11 is 6 marks)

12. Here is a Venn diagram.

a) **List the members of A ∩ B**

_____

A number is chosen at random from $\mathscr{E}$

b) **Find P (B ∪ C)**

_____

(Total for question 12 is 3 marks)

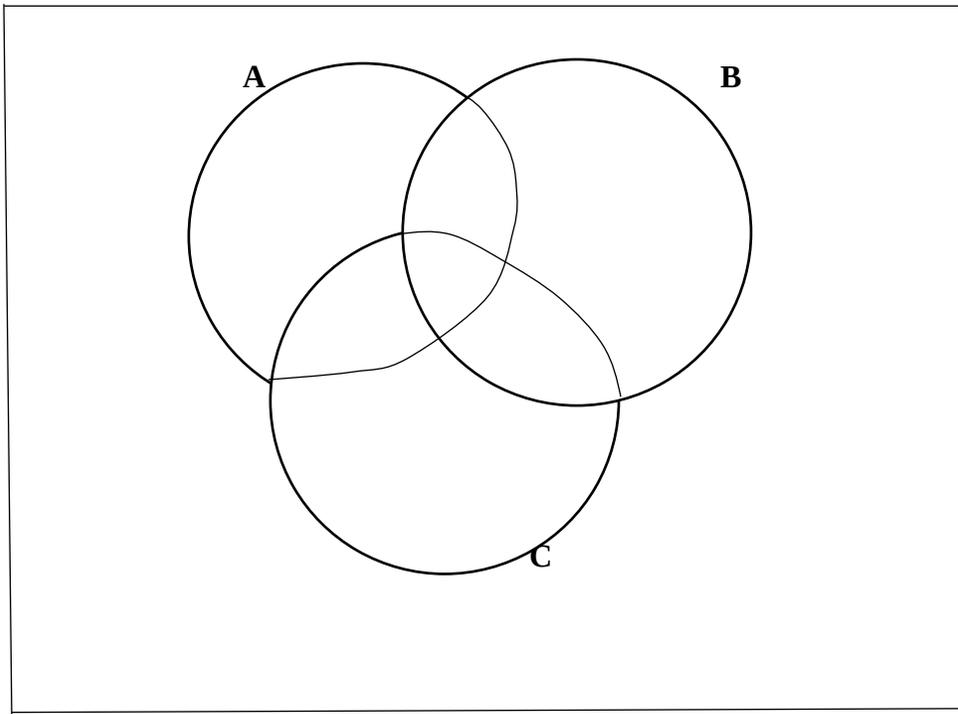**13.** $\mathcal{E}$ = {odd numbers less than 28}
   A = {1, 3, 13, 17, 21}
   B = {13, 15, 19, 21}
   C = {13, 15, 23, 25, 27}

   a) Complete the Venn diagram to represent this information.

   A number is chosen at random from $\mathcal{E}$.
   b) Find the probability that the number is a member of (A ∩ B).