

Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Complex Venn Diagrams

Calculator Allowed

INSTRUCTIONS TO CANDIDATES

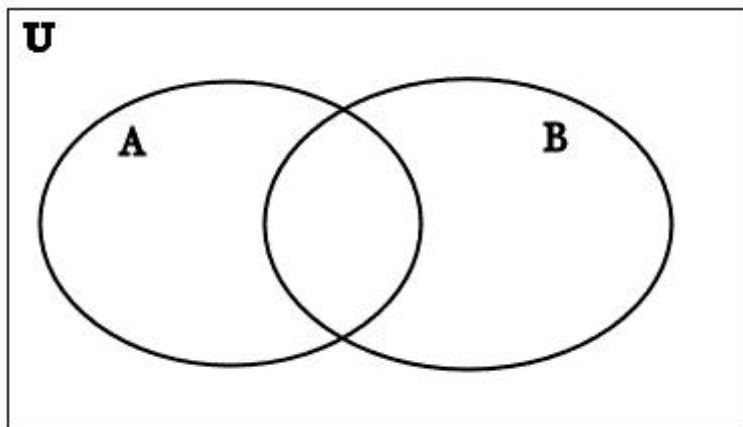
- Write your name in the space provided.
- Write your answers in the spaces provided in this question paper.
- Answer ALL questions.
- Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
- You should have a ruler, compass and protractor where required.

Total Marks :

1) Given that the $P(B)' = 0.75$, what is the $P(B)$?

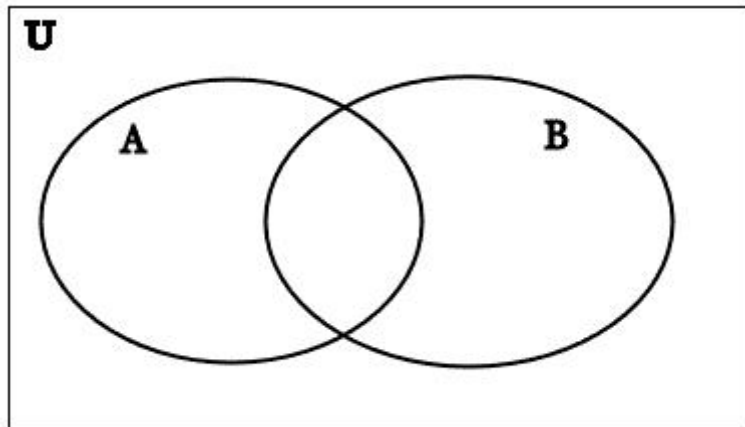
Answer _____ [2]

2) Shade in the region on the Venn diagram that represents $(A \cap B)'$



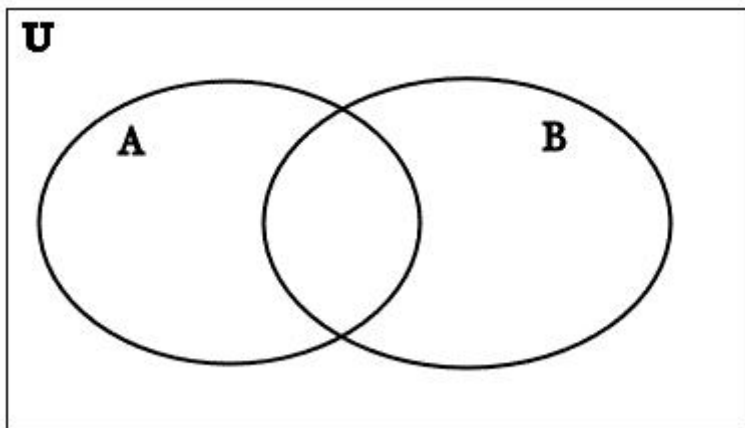
[2]

3) Shade in the region on the Venn diagram that represents $(A \cup B)'$



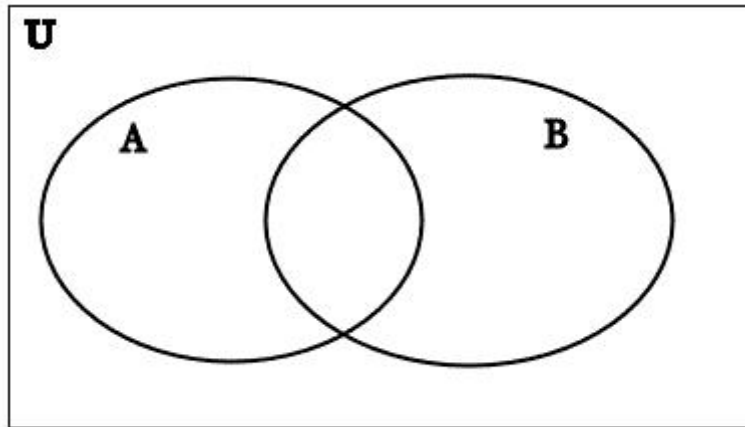
[2]

4) Shade in the region on the Venn diagram that represents $A' \cap B'$



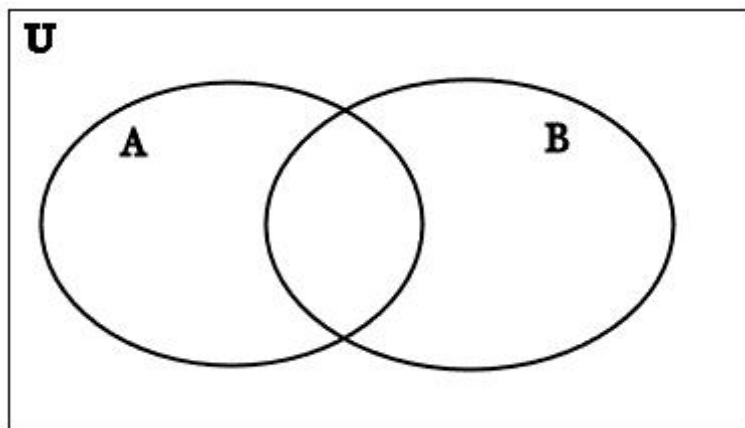
[2]

5) Shade in the region on the Venn diagram that represents $(A' \cap B)'$



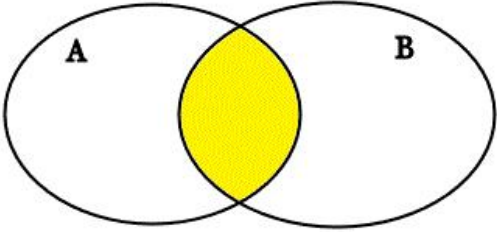
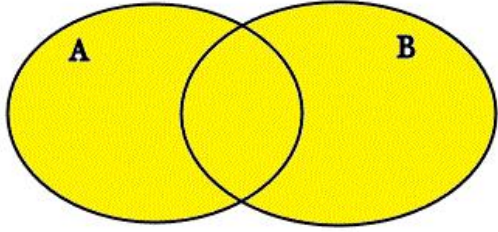
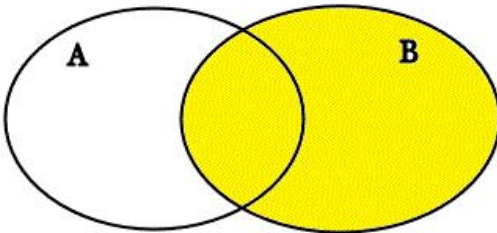
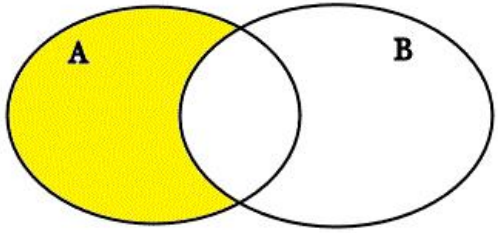
[2]

6) Shade in the region on the Venn diagram that represents $A \cup B'$



[2]

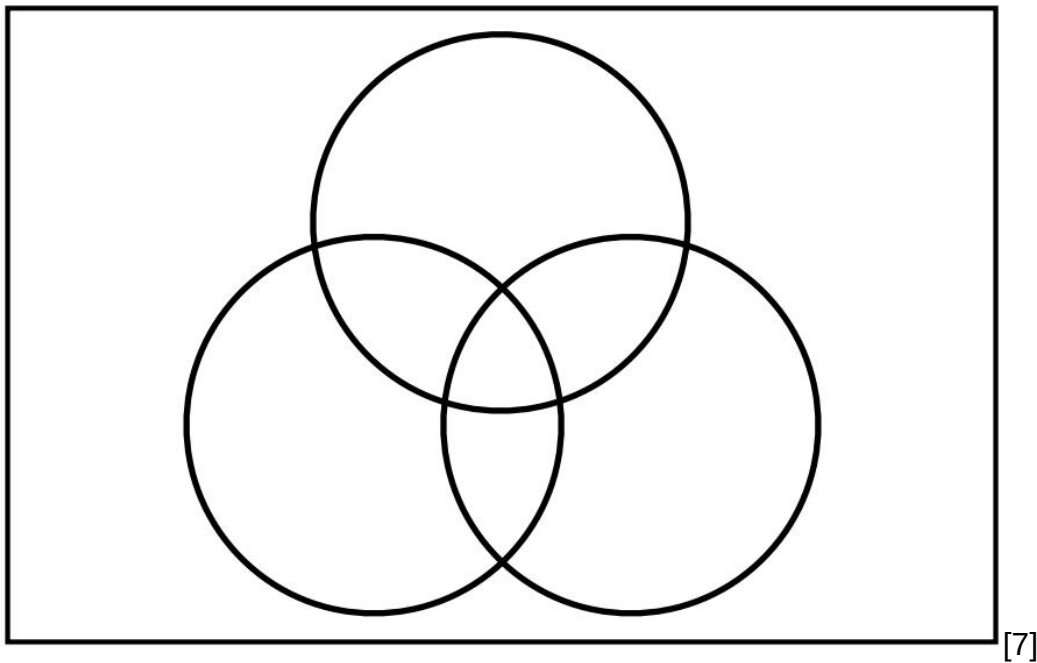
7) Using set terminology, describe the shaded area of these following Venn diagrams.

<p>U</p> 	<p>U</p> 
[1]	[1]
<p>U</p> 	<p>U</p> 
[1]	[2]

8) Sophie does a survey of the 40 girls in her year group to see how much the girls have in common. She discovered all the girls had at least one of these attributes.

- 10 have brown hair, glasses, but do not like dogs
- 12 have brown hair and glasses
- 8 have brown hair and like dogs
- 2 students have brown hair and like dogs, but do not have brown hair
- 28 students have brown hair,
- 19 like dogs
- 15 wear glasses

Draw an appropriate Venn diagram to represent the information.



a) How many girls have all 3 attributes.

Answer _____ [1]

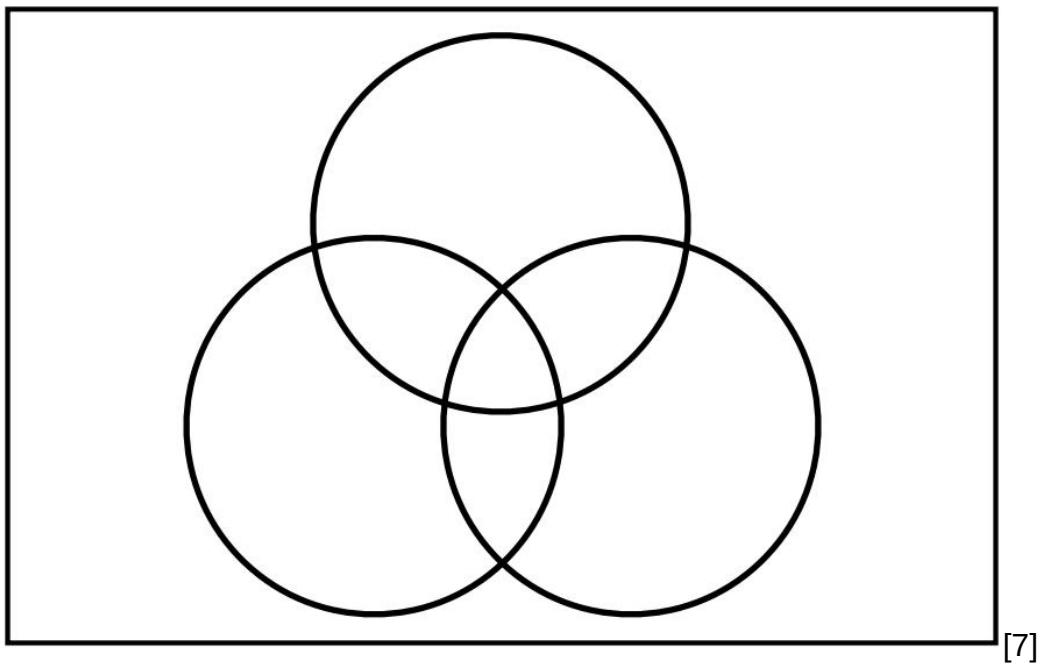
b) Find the probability that a girl chosen at random only has one attribute.

Answer _____ [2]

9) A school organised a meal for their 103 Year 11 students. The students were asked to indicate their food preferences for the meal. They had to choose from chicken, lamb and fish. The following information was collected:

- 2 students do not eat chicken, fish or lamb
- 5 students eat only lamb
- 2 students only eat chicken
- 21 students do not eat fish
- 3 students eat only fish
- 66 students eat chicken and fish
- 75 students eat lamb and fish

Draw an appropriate Venn diagram to represent the information.



a) Calculate the probability that a student, eats only chicken and fish, and not lamb.

Answer _____ [2]

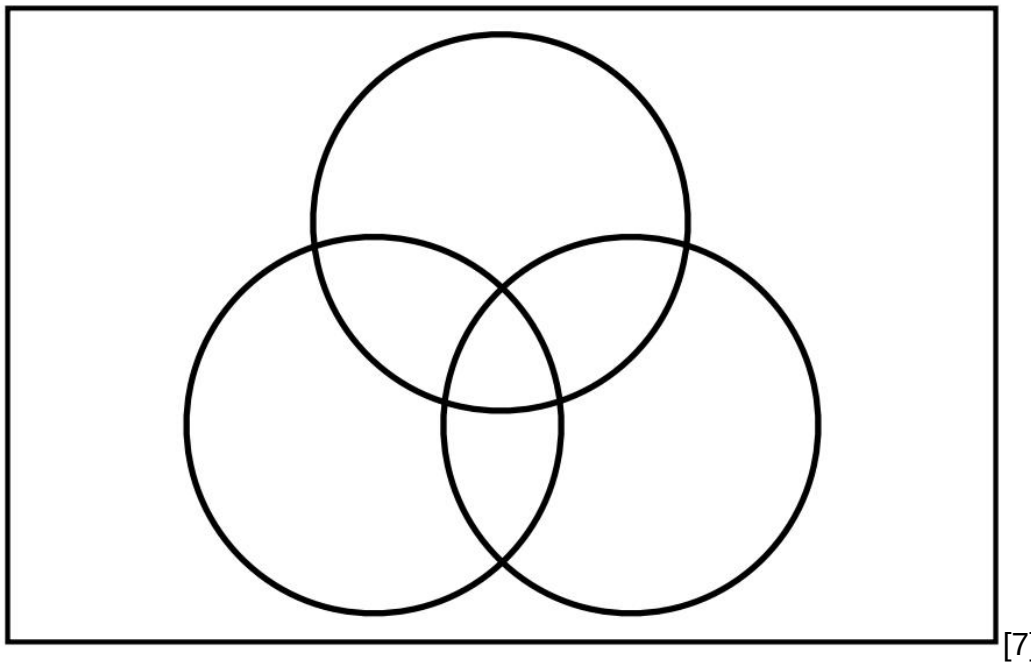
b) Eats any TWO of the given food choices: chicken, lamb and fish. (2)

Answer _____ [2]

10) On a bus journey from Connah's Quay to York, the *IWEN* bus company were asked to do a survey and discovered the following information about their passengers

- 22 passengers were male
- 10 passengers were Welsh
- 9 passengers were left handed
- 1 passenger was a male, Welsh and left handed
- 3 passengers were male and Welsh but not left handed
- 2 male passengers who were left handed, were not Welsh
- None of the female passengers that were Welsh, were also left handed.
- There were 37 passengers altogether.

Draw an appropriate Venn diagram to represent the information.



a) How many passengers had none of the attributes ?

Answer _____ [1]

b) What is the probability of selecting a left handed passenger, given that they are Welsh?

Answer _____ [2]