Maths
Junior Certificate
Ordinary Level

Past Exam Questions on
Sets

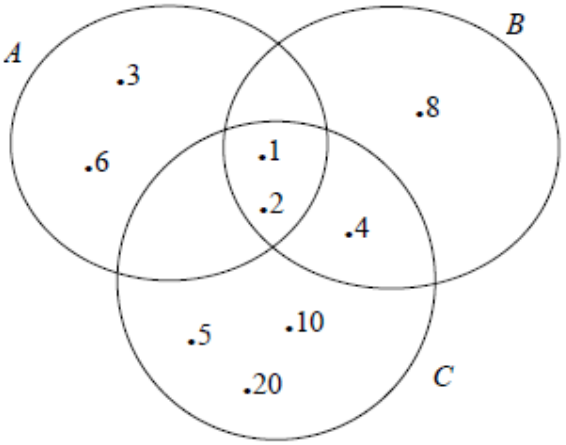
Q1 Part (b) 2012 Paper 1

(b)

$A = \{1, 2, 3, 6\}$ is the set of the divisors of 6.

$B = \{1, 2, 4, 8\}$ is the set of the divisors of 8.

$C = \{1, 2, 4, 5, 10, 20\}$ is the set of the divisors of 20.



List the elements of:

(i) $B \cup C$

(ii) $A \setminus (B \cup C)$

(iii) $B \cap C$

(iv) the common divisors of 6, 8 and 20.

Q1 Part (c) 2012 Paper 1

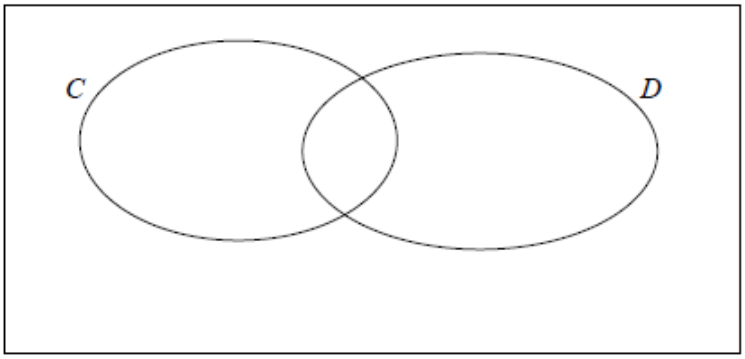
(c) In a survey, 60 households were asked if they had a cat (C) or a dog (D).

20 said they had a cat.

25 said they had a dog.

12 said they had both a cat and a dog.

(i) Represent this information in the Venn diagram below.



(ii) How many households had only a cat or a dog?

(iii) What percentage of households had neither a cat nor a dog?

Q 1 2011 Paper 1

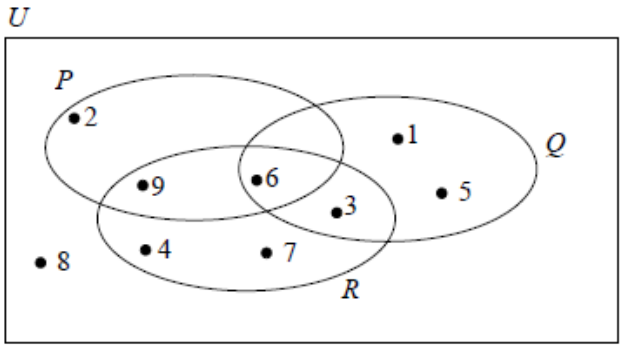
1. **(a)** $S = \{w, x, y, z\}$

(i) Write down a subset of S that has one element.

(ii) Write down a subset of S that has three elements.

(b) U is the universal set.

$P = \{2, 6, 9\}$
$Q = \{1, 3, 5, 6\}$
$R = \{3, 4, 6, 7, 9\}$



List the elements of:

(i) $R \setminus Q$

(ii) P', the complement of set P

(iii) $Q \cup (P \cap R)$

(iv) $(Q \cap R) \setminus P$

Q1 (c) 2009 Paper 1

1(c) In a survey, a group of students were asked if they were studying French or German at school.

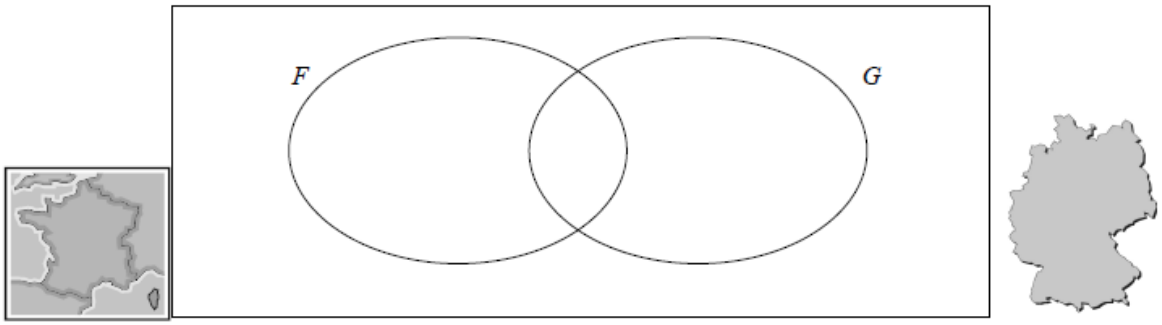
80 of these students said they were studying French (F).

24 of these students said they were studying German (G).

15 of these students said they were studying both French and German.

11 of these students said they were studying neither of the two languages.

(i) Represent this information in the Venn diagram below.



(ii) How many students were in the group?

(iii) How many students did not study German?

Q1 Part (a) 2008 Paper 1

1. **(a)** $S = \{a, b, c\}$

(i) Write down a subset of S that has one element.

(ii) Write down a subset of S that has two elements.

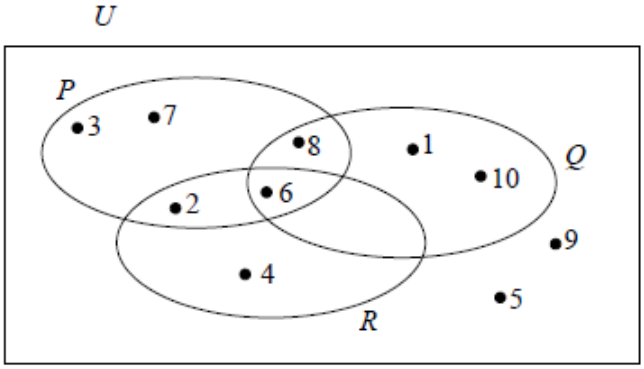
Q1 Part (b) 2008 Paper 1

1(b) U is the universal set.

$P = \{2, 3, 6, 7, 8\}$

$Q = \{1, 6, 8, 10\}$

$R = \{2, 4, 6\}$



List the elements of:

(i) $P \cap Q$

(ii) $Q \setminus R$

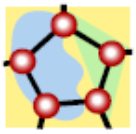
(iii) $(Q \cup R)'$

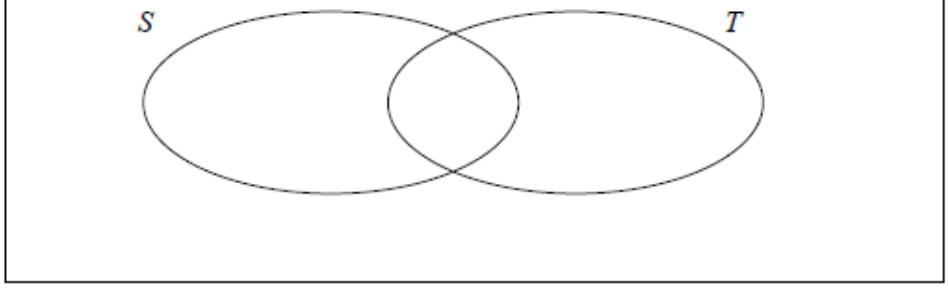
(iv) $(P \cap R) \setminus Q$

Q1 Part (c) 2007 Paper 1

1(c) In a class, all the students study Science (S) or Technical Graphics (T).
A number of the students study both of these subjects.
22 students study Science. 12 students study Technical Graphics.
8 study both subjects.

(i) Represent this information in the Venn diagram below.





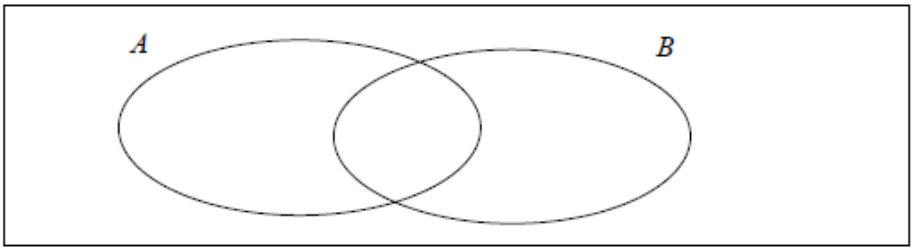
(ii) How many students study Science only?

(iii) How many students are there in the class?

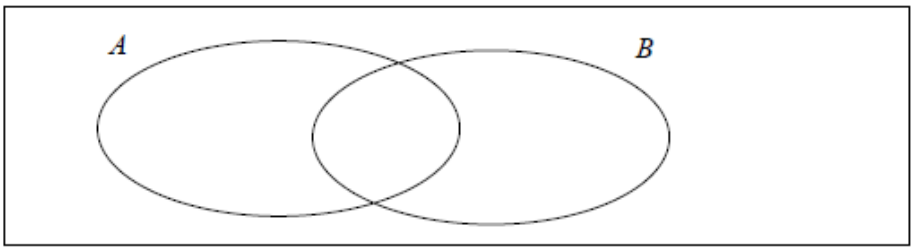
(iv) How many students study only one of the two subjects?

Q1 Part (a) 2007 Paper 1

1. **(a)** **(i)** Using the Venn diagram below, shade in the region that represents $A \cup B$.



(ii) Using the Venn diagram below, shade in the region that represents $A \cap B$.



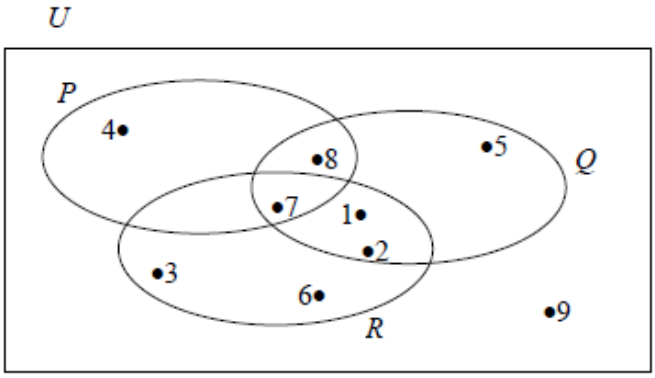
Q1 Part (b) 2007 Paper 1

1(b) U is the universal set.

$P = \{4, 7, 8\}$

$Q = \{1, 2, 5, 7, 8\}$

$R = \{1, 2, 3, 6, 7\}$



List the elements of:

(i) $P \cup Q$

(ii) $P \setminus R$

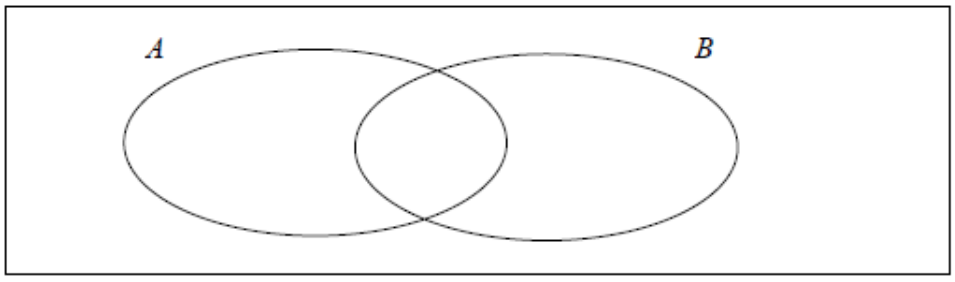
(iii) $(P \cup R) \cap Q$

(iv) $(P \cup Q)'$

Q1 Part (a) 2006 Paper 1

1. (a) $A = \{a, b, c, d, e\}$ $B = \{c, d, f, g\}$

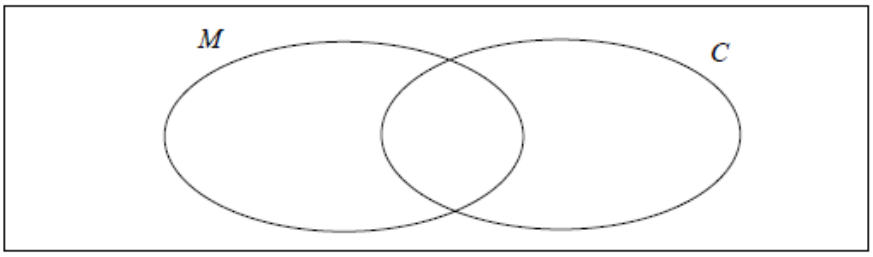
Fill the elements of A and B into the following Venn diagram:



Q1 Part (c) 2006 Paper 1

1(c) There are 30 students in a class.
21 own a mobile phone (M) and 12 own a computer (C).
7 own both a mobile phone and a computer.

(i) Represent this information in the Venn diagram below.



(ii) How many students own a mobile phone but not a computer?

(iii) How many students own neither a mobile phone nor a computer?

(iv) How many students do not own a mobile phone?

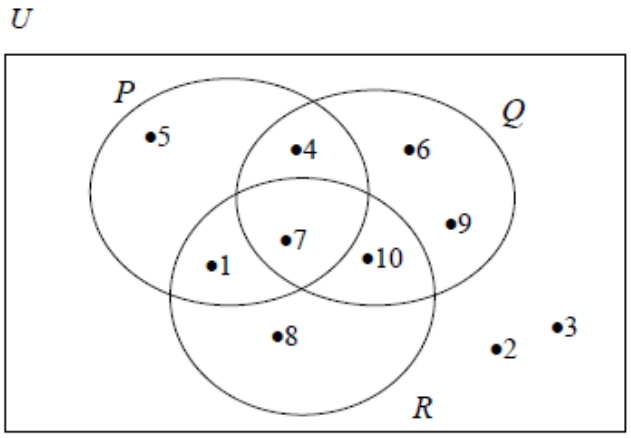
Q1 Part (b) 2006 Paper 1

1(b) U is the universal set.

$P = \{1, 4, 5, 7\}$

$Q = \{4, 6, 7, 9, 10\}$

$R = \{1, 7, 8, 10\}$



(i) List the elements of $Q \cup R$.

(ii) List the elements of $Q \setminus (P \cup R)$.

(iii) List the elements of P', the complement of the set P.

(iv) Write down $\#R$.

Q1 Part (a) 2005 Paper 1

1. **(a)** $P = \{x, y, w\}$

(i) Write down a subset of P that has one element.

(ii) Write down a subset of P that has two elements.

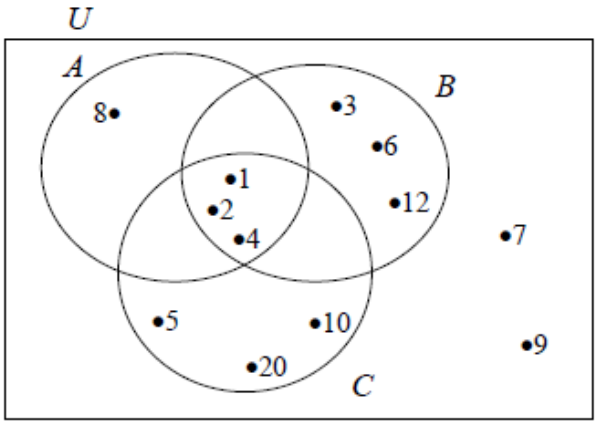
Q1 Part (b) 2005 Paper 1

1(b) U is the universal set.

$A = \{1, 2, 4, 8\}$,
the set of divisors of 8.

$B = \{1, 2, 3, 4, 6, 12\}$,
the set of divisors of 12.

$C = \{1, 2, 4, 5, 10, 20\}$,
the set of divisors of 20.



(i) List the elements of $A \cap C$.

(ii) List the elements of B', the complement of the set B.

(iii) List the elements of $C \setminus (A \cap B)$.

(iv) Using the Venn diagram above, or otherwise,
find the highest common factor of 8, 12 and 20.