May 2006 Paper 2

17 \( n(A) = 18, n(B) = 11 \) and \( n(A \cup B)' = 0. \)

(a) Label the Venn diagram to show the sets \( A \) and \( B \) where \( n(A \cup B) = 18. \)
Write down the number of elements in each region.

(b) Draw another Venn diagram to show the sets \( A \) and \( B \) where \( n(A \cup B) = 29. \)
Write down the number of elements in each region.

November 2002 Paper 2

3 Three sets \( A, B \) and \( K \) are such that \( A \subset K, \ B \subset K \) and \( A \cap B = \emptyset. \)
Draw a Venn diagram to show this information.
November 2006 Paper 2

11 (a) Shade the region $A \cap B$.

(b) Shade the region $(A \cup B)'$.

(c) Shade the complement of set $B$.

November 2007 Paper 2

12 $A$ and $B$ are sets.

Write the following sets in their simplest form.

(a) $A \cap A'$.

Answer(a)  ...................................................  [1]

(b) $A \cup A'$.

Answer(b)  ...................................................  [1]
June 2010 Paper 2.1

12 \( Q = \{2, 4, 6, 8, 10\} \) and \( R = \{5, 10, 15, 20\} \).
\( 15 \in P, \ n(P) = 1 \) and \( P \cap Q = \emptyset \).

Label each set and complete the Venn diagram to show this information.

June 2010 Paper 2.2

7

The shaded area in the diagram shows the set \( (A \cap C) \cap B' \).

Write down the set shown by the shaded area in each diagram below.
May 2003 Paper 2

11 Write each of these four numbers in the correct place in the Venn Diagram below.

\[ 2.6, \frac{4}{17}, \sqrt{12}, \sqrt{\frac{112}{7}} \]

\[ \begin{array}{c}
\mathcal{E} \\
\text{Rational numbers} \\
\text{Integers}
\end{array} \]

May 2005 Paper 2

11 \( n(\mathcal{E}) = 21, n(A \cup B) = 19, n(A \cap B') = 8 \) and \( n(A) = 12. \)

Complete the Venn diagram to show this information.

\[ \begin{array}{c}
A \\
B
\end{array} \]

Answer (a) 

\[ 2, \frac{4}{17}, \sqrt{12}, \sqrt{\frac{112}{7}} \]

Answer (b) 

\[ 4, 17, 12, \sqrt{12}, \frac{4}{17}, 2.6, 112 \]
May 2007 Paper 2

8 On the Venn diagrams shade the regions

(a) \( A' \cap C' \),

(b) \((A \cup C) \cap B\).

May 2008 Paper 2

12 \( \mathcal{E} = \{1,2,3,4,5,6,7,9,11,16\} \) \( P = \{2,3,5,7,11\} \) \( S = \{1,4,9,16\} \) \( M = \{3,6,9\} \)

(a) Draw a Venn diagram to show this information.

(b) Write down the value of \( n(M' \cap P) \).

\textit{Answer(b)}
May 2009 Paper 2

4 Shade the region required in each Venn Diagram.

November 2004 Paper 2

11 \( \mathbb{U} = \{40, 41, 42, 43, 44, 45, 46, 47, 48, 49\} \)
\( A = \{ \text{prime numbers} \} \)
\( B = \{ \text{odd numbers} \} \)

(a) Place the 10 numbers in the correct places on the Venn diagram.

(b) State the value of \( n(B \cap A') \).

Answer(b) ……………………………… [1]
4 (a) All 24 students in a class are asked whether they like football and whether they like basketball. Some of the results are shown in the Venn diagram below.

\[ \mathcal{C} = \{ \text{students in the class} \}, \]
\[ F = \{ \text{students who like football} \}, \]
\[ B = \{ \text{students who like basketball} \}. \]

(i) How many students like both sports? \[1\]
(ii) How many students do not like either sport? \[1\]
(iii) Write down the value of \( n(F \cup B) \). \[1\]
(iv) Write down the value of \( n(F' \cap B) \). \[1\]

November 2008 Paper 4

9 In a survey, 100 students are asked if they like basketball (\( B \)), football (\( F \)) and swimming (\( S \)).

The Venn diagram shows the results.

42 students like swimming.
40 students like exactly one sport.

(a) Find the values of \( p \), \( q \) and \( r \). \[3\]
(b) How many students like

(i) all three sports, \[1\]

(ii) basketball and swimming but not football? \[1\]

(c) Find

(i) \(n(B')\), \[1\]

(ii) \(n((B \cup F) \cap S')\). \[1\]

Total marks: 45