1) The Venn Diagram below shows two sets, Q and S. [1]

List the members of:

a) $\xi$  
b) $Q$  
c) $S$
2) The Venn Diagram below shows two sets, \( W \) and \( F \).

List the members of the following sets

a) \( W \cup F \) 

b) \( W \cap F \) 

c) \( W' \) 

d) \( F' \) 

3) Given the following information about a Venn Diagram

\( \xi = \{ \text{integers from 1 to 10} \} \)

\( E = \{4,5,6,8\} \)

\( F = \{1,4,10\} \)

List the members of the following sets

a) \( E \cup F \) 

b) \( E \cap F \) 

c) \( E' \) 

d) \( F' \)
4) Put the numbers in the correct positions in the Venn Diagram below:

3, 6, 14, 15, 16, 18, 20, 21, 24

5) Put the shapes in the correct positions in the Venn Diagram below:

rectangle, regular hexagon, square
6) List the members of $E$ using the Venn Diagram below.

\[ E = \{3, 9\} \cup \{1, 2, 4, 5, 7, 10\} \cup \{6, 8\} \]

7) List the members of $M \cap Y$ using the Venn Diagram below.

\[ M \cap Y = \{2, 4, 7\} \cup \{8, 9\} \cup \{1, 3, 5, 6, 10\} \]
8) The Venn Diagram below shows two sets, S and P.

Find:

a) \( n(\xi) \)  

b) \( n(S) \)  

c) \( n(P) \)
9) The Venn Diagram below shows two sets, K and M.

\[
\begin{array}{c}
K \\
\quad 4,9 \quad 8 \quad 1,2,3,5,7 \\
\text{M} \\
\quad 6,10
\end{array}
\]

Find 

a) \(n(K \cup M)\)  

b) \(n(K \cap M)\)  

c) \(n(K')\)  

d) \(n(M')\)

10) A Venn diagram contains the following information

\(\xi = \{\text{integers from 1 to 10}\}\)  

P = \{2,3,5,9,10\}  

G = \{4,6,8,9\}

Find 

a) \(n(\xi)\)  

b) \(n(P)\)  

c) \(n(G)\)
11) A Venn diagram contains the following information

\[ \xi = \{ \text{integers from 1 to 10} \} \]
\[ S = \{2,3,5,8,9,10\} \]
\[ E = \{1,5,6,7\} \]

Find

a) \( n(S \cup E) \)  

b) \( n(S \cap E) \)  

c) \( n(S') \)  

d) \( n(E') \)
Solutions for the assessment Sets & Venn Diagrams

1) a) $\xi = \{1,2,3,4,5,6,7,8,9,10\}$
b) $Q = \{1,4,6,7,9,10\}$
c) $S = \{2,4,9\}$

2) a) $W \cup F = \{2,3,4,6,7,8,9,10\}$
b) $W \cap F = \{2,8,10\}$
c) $W' = \{1,3,5,6,7\}$
d) $F' = \{1,4,5,9\}$

3) a) $E \cup F = \{1,4,5,6,8,10\}$
b) $E \cap F = \{4\}$
c) $E' = \{1,2,3,7,9,10\}$
d) $F' = \{2,3,5,6,7,8,9\}$

4) Even numbers = 14,16,20
   Multiples of 3 = 3,15,21
   Both even numbers and multiples of 3 = 6,18,24

5) Regular polygons = regular hexagon
   Quadrilaterals = rectangle
   Both regular polygons and quadrilaterals = square

6) $E = \{3,6,8,9\}$

7) $M \cap Y = \{8,9\}$

8) a) $n(\xi) = 10$
b) $n(S) = 4$
c) $n(P) = 3$

9) a) $n(K \cup M) = 8$
b) $n(K \cap M) = 1$
c) $n(K') = 7$
d) $n(M') = 4$

10) a) $n(\xi) = 10$
b) $n(P) = 5$
c) $n(G) = 4$

11) a) $n(S \cup E) = 9$
b) $n(S \cap E) = 1$
c) $n(S') = 4$
d) $n(E') = 6$