

TEACHER'S NAME:

NAME:

CLASS:

### 11.1 SET

#### Nota

- A set is a collection of objects that have certain common characteristics.
- Each object in a set is called an element
- An empty set is a set that has no elements and is represented by a symbol or { }
- $a \in S$  means a is an element of S.
- $b \notin S$  means b is not an element of S.

A Describe the following set using listings.

Match the answers below

Set S is a factor of 12

$S = \{3, 6, 9, 12, 15, 18\}$

Set S is a factor of 20

$S = \{2, 4, 6, 8, 10\}$

Set S is a multiple of 3  
which is less than 20

$S = \{1, 4, 9, 16, 25, 36, 49\}$

Set S is an even number  
in the range  $1 < x \leq 10$

$S = \{1, 2, 4, 5, 10, 20\}$

The set S is a perfect square  
number in the range  $1 \leq x < 50$

$S = \{1, 2, 3, 4, 6, 12\}$

B Mark / on empty set and X if not empty set.

a) A = { The Pentagon has 6 sides}		b) B = {x : x is a common factor of 10 and 20}	
c) C = { A multiple of 10 is a multiple of 5}		d) D = { Even numbers can be divided exactly by zero }	

C Choose the following using symbol  $\in$  or  $\notin$ . (Choose 1 answer)

a) A = {Factors of 20}	b) B = {Quadrilaterals}
10  /  A	Cube  /  B
c) C = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}	d) D = {a,b,c,d,e,f,g,h}
15  /  C	m  /  D

D Determine the number of elements for the set below.

a) A = {1,2,3,4,5,6,7,8,9,10}	b) B = {1,3,5,7,9,11,13,15,17,19}
$n(A) =$ <input type="text"/>	$n(B) =$ <input type="text"/>
a) C = { Consonant letters in words RAINBOW }	b) D = {x: x is a perfect square number and $x < 100$ }
$n(C) =$ <input type="text"/>	$n(D) =$ <input type="text"/>
c) E = { x : x is an integer, $10 \leq x \leq 20$ }	d) F = { Vowel letters in the word MERPATI }
$n(E) =$ <input type="text"/>	$n(F) =$ <input type="text"/>

E find the value of x if A = B.

a) $A = \{2, 4, 6, 8\}$ $B = \{4, 6, 8, x\}$  $x =$ <input type="text"/>	b) $P = \{4, 5, 6, 7\}$ $Q = \{7, x, 5, 4\}$  $x =$ <input type="text"/>
c) $R = \{1^2, 2^2, 3^2, 4^2, 5^2\}$ $S = \{9, 16, 4, 1, x\}$  $x =$ <input type="text"/>	d) $D = \{2, 3, 5, 7, 11, 13, 17, 21, 23, 29, 31\}$ $E = \{3, 7, 13, 21, 29, 5, 11, 17, 23, 31, x\}$  $x =$ <input type="text"/>

## 11.2 VENN DIAGRAMS, UNIVERSALS SETS, COMPLEMENT OF A SET AND SUBSETS

Notes:

A universal set is a set that contains all the elements in a discussion and is represented by symbols  $\xi$ .

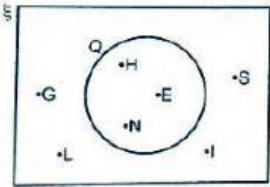
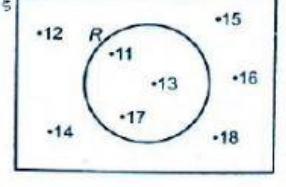
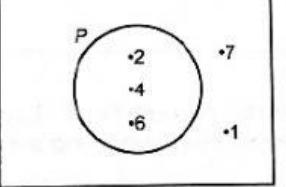
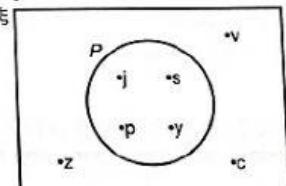
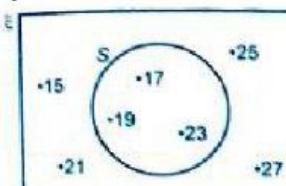
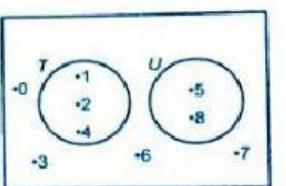
- A universal set is a set that contains all the elements in a discussion and is represented by symbols.
- If all the elements of set A are elements in set B, then A is a subset of set B.  $A \subset B$
- If  $A \not\subset B$  means set A is not a subset of set B.

F Match the set below with the correct set of universes.

$A = \{a, b, e, g, h\}$	$\xi = \{K, I, P, A, S\}$
$A = \{K, P, S\}$	$\xi = \{x: x \text{ is an integer and } x < 13\}$
$A = \{7, 9, 11\}$	$\xi = \{x: x \text{ is a factor of } 20\}$
$A = \{x: x \text{ is a factor of } 10\}$	$\xi = \{\text{Letters}\}$

**G List all the elements of the complementary set below.**

(Write in alphabetical/number order)

<p><b>a)</b></p>  <p><b>Q =</b> <input type="text"/></p> <p><b>Q' =</b> <input type="text"/></p>	<p><b>b)</b></p>  <p><b>R =</b> <input type="text"/></p> <p><b>R' =</b> <input type="text"/></p>	<p><b>c)</b></p>  <p><b>P =</b> <input type="text"/></p> <p><b>P' =</b> <input type="text"/></p>
<p><b>d)</b></p>  <p><b>P =</b> <input type="text"/></p> <p><b>P' =</b> <input type="text"/></p>	<p><b>e)</b></p>  <p><b>S =</b> <input type="text"/></p> <p><b>S' =</b> <input type="text"/></p>	<p><b>f)</b></p>  <p><b>T =</b> <input type="text"/></p> <p><b>T' =</b> <input type="text"/></p> <p><b>U =</b> <input type="text"/></p> <p><b>U' =</b> <input type="text"/></p>

**H Exercises**

a) Determine the number of elements in each of the following sets. (Choose 1 answer)

i)  $A = \{ \text{consonant letters in words INOVATIF} \}$

4

6

8

ii)  $\{ \text{multiple of 7 is less than 40} \}$

4

5

6

b) Mark / on the correct statement and X for the incorrect statement.

Given  $\xi = \{x : 20 < x \leq 50\}$ , x is an integer,

$P = \{ \text{Prime Numbers} \}$  dan  $Q = \{\text{Multiple of } 4\}$

a	The number of subsets of set P is 128	
b	The number of elements in the set Q is 8	
c	One of the subsets in set Q is { }	
d	$P = \{ \}$	

c) Match the correct region for the set below.

