

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

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

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

D Determine the number of elements for the set below.

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

E find the value of x if A = B.

a) $A = \{2, 4, 6, 8\}$ $B = \{4, 6, 8, x\}$ x =	b) $P = \{4, 5, 6, 7\}$ $Q = \{7, x, 5, 4\}$ x =
c) $R = \{1^2, 2^2, 3^2, 4^2, 5^2\}$ $S = \{9, 16, 4, 1, x\}$ x =	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 =

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 ξ .

- 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.

$$A = \{a, b, e, g, h\}$$

$$A = \{K, P, S\}$$

$$A = \{7, 9, 11\}$$

$$A = \{x: x \text{ is a factor of } 10\}$$

$$\xi = \{K, I, P, A, S\}$$

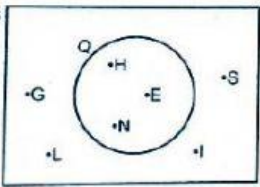
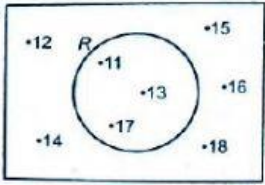
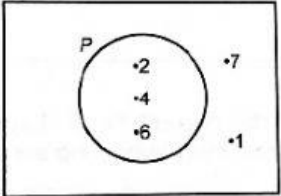
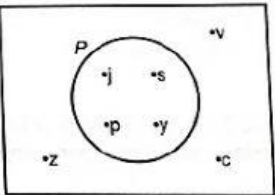
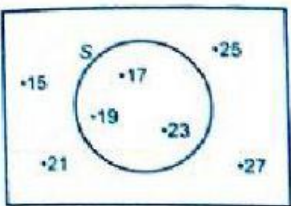
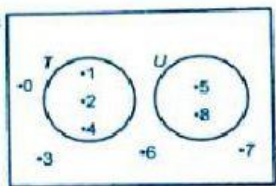
$$\xi = \{x: x \text{ is an integer and } x < 13\}$$

$$\xi = \{x: x \text{ is a factor of } 20\}$$

$$\xi = \{\text{Letters}\}$$

G List all the elements of the complementary set below.

(Write in alphabetical/number order)

a)  Q = Q' =	b)  R = R' =	c)  P = P' =
d)  P = P' =	e)  S = S' =	f)  T = T' = U = U' =

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.

