



# ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION



**CLASS – 8**

**SUBJECT : Arithmetic**

**Work sheet 12 Answer &key**

**Time:40 minutes**

**Date:22.2.2021**

## SETS

Answer all the following questions:

1. set is denoted by
  - a) { }
  - b) ( )
  - c) [ ]
  - d) none of these

Answer: a

Explanation:By convention

2. The set O of odd positive integers less than 10 can be expressed by \_\_\_\_\_
  - a) {1, 2, 3}
  - b) {1, 3, 5, 7, 9}
  - c) {1, 2, 5, 9}
  - d) {1, 5, 7, 9, 11}

Answer: b

Explanation: Odd numbers less than 10 are {1, 3, 5, 7, 9}.

3. Which of the following two sets are equal?
  - a)  $A = \{1, 2\}$  and  $B = \{1\}$
  - b)  $A = \{1, 2\}$  and  $B = \{1, 2, 3\}$
  - c)  $A = \{1, 2, 3\}$  and  $B = \{2, 1, 3\}$
  - d)  $A = \{1, 2, 4\}$  and  $B = \{1, 2, 3\}$

Answer: c

Explanation: Two set are equal if and only if they have the same elements.

4. The set of positive integers is \_\_\_\_\_
  - a) Infinite
  - b) Finite
  - c) Subset
  - d) Empty

Answer: a

Explanation: {1, 2,3,4,5,.....}

5. The members of the set  $S = \{x \mid x \text{ is the square of an integer and } x < 100\}$  is \_\_\_\_\_
- a)  $\{0, 2, 4, 5, 9, 58, 49, 56, 99, 12\}$
  - b)  $\{0, 1, 4, 9, 16, 25, 36, 49, 64, 81\}$
  - c)  $\{1, 4, 9, 16, 25, 36, 64, 81, 85, 99\}$
  - d)  $\{0, 1, 4, 9, 16, 25, 36, 49, 64, 121\}$

Answer: b

Explanation: The set S consists of the square of an integer less than 10.

6. The sets  $\{M,A,N\}$  and  $\{B,O,Y\}$  are types of
- a) equal sets
  - b) equivalent sets
  - c) empty sets
  - d) singleton sets

Answer: b

Explanation: Both sets contain same number of elements

7. The set  $\{0,1,2,3,4,\dots\}$  is an example of
- a) set of natural numbers
  - b) set of real numbers
  - c) set of integers
  - d) set of whole numbers

Answer: d

Explanation: Since, 0 is a whole number

8. The set of rational numbers is denoted by
- a) Q
  - b) R
  - c) Z
  - d) N

Answer: Q

Explanation: By convention

9. Which of the following statement is correct?
- a) All equal sets are equivalent
  - b) All equivalent sets are equal
  - c) An empty set is not a null set
  - d)  $\{0\}$  is an empty set

Answer: a

Explanation: Take the example of question 3 and 6

10.  $\{x: x \text{ is a real number between } 1 \text{ and } 2\}$  is an
- a) Infinite set
  - b) Finite set

- c) Empty set
- d) None of the mentioned

Answer: a

Explanation: It is an infinite set as there are infinitely many real number between any two different real numbers.

11. Convert set  $\{x: x \text{ is a positive prime number which divides } 72\}$  in roster form:
- a)  $\{2, 3, 5\}$
  - b)  $\{2, 3, 6\}$
  - c)  $\{2, 3\}$
  - d)  $\{\emptyset\}$

Answer: c

Explanation: 2 and 3 are prime factors of 72

12. Express  $\{x: x= n/ (n+1), n \text{ is a natural number less than } 7\}$  in roster form:
- a)  $\{\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{6}{7}\}$
  - b)  $\{\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}, \frac{7}{8}\}$
  - c)  $\{\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}\}$
  - d) Infinite set

Answer: c

Explanation:  $n/(n+1) = 1/2$  and  $n < 7$

13. Which sets are not empty?
- a)  $\{x: x \text{ is a even prime greater than } 3\}$
  - b)  $\{x : x \text{ is a multiple of } 2 \text{ and is odd}\}$
  - c)  $\{x: x \text{ is an even number and } x+3 \text{ is even}\}$
  - d)  $\{ x: x \text{ is a prime number less than } 5 \text{ and is odd}\}$

Answer: d

Explanation: Because the set is  $\{3\}$ .

14. Write set  $\{1, 5, 15, 25, \dots\}$  in set-builder form :
- a)  $\{x: \text{either } x=1 \text{ or } x=5n, \text{ where } n \text{ is a real number}\}$
  - b)  $\{x: \text{either } x=1 \text{ or } x=5n, \text{ where } n \text{ is a integer}\}$
  - c)  $\{x: \text{either } x=1 \text{ or } x=5n, \text{ where } n \text{ is an odd natural number}\}$
  - d)  $\{x: x=5n, \text{ where } n \text{ is a natural number}\}$

Answer: c

Explanation: Set should include 1 or an odd multiple of 5.

15.  $\{x: x \text{ is an integer neither positive nor negative}\}$  is
- a) Empty set
  - b) Non- empty set
  - c) Finite set
  - d) Both b and c

Answer: d

Explanation: Set =  $\{0\}$  non-empty and finite set

