



DISTRICT PUBLIC SCHOOL & COLLEGE, KASUR

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Class **7th**

Subject **Mathematics**

Term **1st**

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Class 7th

Notes Mathematics

DEFINITION

SET :

A set is a collection of well- defined or distinct objects.

MEMBERS OR ELEMENTS OF SET :

The objects in a set are called members or elements of set.

FINITE SET :

If a set contains a finite or limited number of elements, then it is called finite set.

INFINITE SET:

If a set contains an infinite or unlimited number of elements , then it is called infinite set.

EMPTY SET :

An empty set is a set that contains no element.

Empty set is also called null set or void set.

DISJOINT SET:

Two or more sets are called disjoint sets if they have no common elements

OVERLAPPING SET:

Two or more sets are called overlapping sets if they have at least one common element.

EQUIVALENT SET:

Two or more sets are said to be equivalent sets, if they have an equal number of elements. it is not necessary for them to have the same elements.

EQUAL SET:

Two or more sets are said to be equal sets if they contain the same elements.

UNIVERSAL SET:

A universal set is a set which contains all the sets under consideration.

SUBSET:

If each element of a set A is also an element of another set B, then the set A is called the subset of the set B. the symbol \subseteq is used to denote a subset.

SUPER SET:

A super set is a set that contain all the elements of a smaller set.

CARDINAL NUMBER :

The number of elements of a set is called its cardinal number.

UNION OF SETS :

A set containing all the elements of A and B is called the union of set A and set B.

INTERSECTION OF SETS :

A set containing the common elements of A and B is called the intersection set of set A and set B.

RATIONAL NUMBER :

A number which can be represented in the form of $\frac{p}{q}$ (where p and q are integers and q is not equal to 0) is a rational number. Or

Rational numbers (Q) are numbers that include integers and fractions.

RATIO :

A ratio is a relation which one quantity bears to another quantity of the same kind with regard to their magnitudes.

OR

A comparison between two same quantities is called ratio.

PROPORTION :

The sign of equality between two ratios is called proportion.

DIRECT PROPORTION :

In direct proportion, an increase in one quantity leads to a similar increase in the other quantity. similarly, when one quantity decreases it leads to a decrease in the other quantity.

INVERSE PROPORTION :

In direct proportion, an increase in one quantity leads to a similar decrease in the other quantity. similarly, when one quantity decreases it leads to a increase in the other quantity.

VARIABLE :

A variable is an unknown number, represented by a letter.

COEFFICIENT :

A number that is placed before the variable is called the coefficient.

CONSTANT :

A constant is a symbol with a fixed numerical value.

An algebraic expression consists of a single term or terms connected by operations of addition and subtraction.

ALGEBRAIC TERM :

An algebraic term is either a numeral, a variable, or a product of a numeral and one or more variables.

POLYNOMIALS :

A polynomial is an algebraic expression consisting of one or more terms, in each of which the exponent of the variable is zero or a positive integer.

MONOMIAL :

A monomial is a polynomial consisting of a single term

BINOMIAL :

A binomial is a polynomial consisting of two terms.

TRINOMIAL :

A trinomial is a polynomial consisting of three terms.

LIKE TERMS :

Terms containing the same variables and the same corresponding exponents are known as like terms.

UNLIKE TERMS : Terms having different variables or the same variables but different corresponding exponents are called unlike terms.

OBJECTIVE FIRST TERM

MULTIPLE CHOICE QUESTION

CHAPTER NO : 1

- 1 IF $A = \{ a, t, e \}$ then $n(A) =$ -----
 (a) 1 (b) 2 (c) 3 (d) 4
- 2 If $A = \{ 1, 2, 3, \dots, 100\}$ and $B = \{ 2, 4, 6, 8, \dots, 100\}$ then $A - B$ is
 (a) $\{ 1, 3, 5, 7, \dots, 99\}$ (b) $\{ 2, 4, 6, 8, \dots, 100\}$ (c) $\{ 1, 2, 3, \dots, 100\}$ (d) $\{ \}$
- 3 If $D = \{ x : x \text{ is letter in the word SLEEVES } \}$, then $n(D) =$ -----
 (a) 7 (b) 6 (c) 5 (d) 4
- 4 $\{ 0 \}$ is a ----- set.
 (a) Null (b) Zero (c) Unit (d) Void
- 5 The rectangular region in a Venn diagram represents
 (a) U (b) $A \cup B$ (c) $A \cap B$ (d) $A - B$
- 6 The commutative property of intersection is
 (a) $A \cup B = B \cup A$ (b) $A \cap B = B \cap A$ (c) $A \cap C = C \cap B$ (d) $C \cap B = B \cup A$
- 7 The compliment of set B is determined as
 (a) $A - B$ (b) $A \cup B$ (c) $U \cap B$ (d) $U \setminus B$
- 8 Number of elements in a set is called its
 (a) Universal set (b) Empty set (c) Cardinal number (d) unit set
- 9 ----- is a group of distinct and well-defined object.
 (a) data (b) set (c) Groups (d) Objects
- 10 Disjoint sets have no common -----
 (a) Sets (b) Subset (c) Proper subsets (d) Elements
- 11 Equal sets have -----
 (a) Same element (b) Not same element (c) empty (d) none of these
- 12 $A \setminus B$ shows the ----- of the sets
 (a) Difference (b) Union (c) Intersection (d) Compliment
- 13 A ----- set only includes common elements.
 (a) Difference (b) Intersection (c) Union (d) Empty
- 14 Commutative property of union of set is
 (a) $A \cup B = B \cup A$ (b) $A \cap B = B \cup A$ (c) $A \cup B = B \cup C$ (d) none of these
- 15 Associative property of intersection of set is
 (a) $A \cap B = A \cap (B \cap C)$ (b) $(A \cap B) \cap C = A \cap (B \cap C)$ (c) $A \cap B \cap C$ (d) $(A \cup B) \cup C = A \cup (B \cup C)$
- 16 An example of empty set is
 (a) Smallest even no (b) Integer b/w 5 & 6 (c) smallest natural no (d) whole no b/w 9 & 11
- 17 Sets which have at least one common elements are called -----sets
 (a) Difference (b) Overlapping (c) Subsets (d) Universal
- 18 A set which contains all the sets under discussion is called
 (a) Difference of sets (b) Subsets (c) Union of sets (d) Universal set
- 19 A set which contains all the elements of smaller set is called.
 (a) Unit set (b) Empty set (c) Subset (d) Super set
- 20 _____ is the subset of every set.
 (a) Unit set (b) Empty set (c) Subset (d) Universal set

MULTIPLE CHOICE QUESTIONS

UNIT : 2

- 1 Rational number are numbers that include
 (a) integer and fraction (b) integers and irrational numbers
 (c) integers and odd numbers (d) Rational and Irrational numbers
- 2 The additive inverse of $\frac{1}{5}$ is?
 (a) $-\frac{1}{5}$ (b) 5 (c) -5 (d) 1
- 3 When 'a' is added to its inverse the result is
 (a) 1 (b) 2 (c) 0 (d) no one
- 4 The reciprocal of $\frac{2}{-3} \times \frac{6}{-7}$ is
 (a) $\frac{7}{4}$ (b) $\frac{7}{3}$ (c) $\frac{4}{7}$ (d) $\frac{-4}{7}$
- 5 The reciprocal of a rational number is
 (a) multiplicative inverse (b) additive inverse (c) multiplicative identity (d) additive identity
- 6 ----- is called the multiplicative identity of rational number.
 (a) 1 (b) 2 (c) 0 (d) -1
- 7 the standard form of $\frac{-21}{-35}$
 (a) $\frac{-3}{5}$ (b) $\frac{3}{5}$ (c) $\frac{21}{35}$ (d) $\frac{35}{21}$
- 8 ----- is called additive identity of rational number?
 (a) 0 (b) 1 (c) -1 (d) no one
- 9 $\frac{-4}{13} \div \frac{-12}{52} = ?$
 (a) $\frac{5}{3}$ (b) $\frac{4}{3}$ (c) $\frac{3}{4}$ (d) $\frac{1}{4}$
- 10 which is greater $\frac{-4}{9}$ or $\frac{-10}{3}$
 (a) $\frac{-10}{3}$ (b) $\frac{-4}{9}$ (c) both are equal (d) no one
- 11 if a, b \in Q then commutative property w.r.t addition is?
 (a) $a + b = b + a$ (b) $(ab)c = a(bc)$ (c) $a + (b + c) = (a + b) + c$ (d) no one
- 12 numbers ----- to the right on the number line.
 (a) decrease (b) increase (c) remain same (d) no one
- 13 $\left(\frac{21}{15}\right) \times \left(\frac{-5}{7}\right)$ is equal to
 (a) -3 (b) 1 (c) -1 (d) -5
- 14 If a, b, c \in Q then Associative property w.r.t. multiplication is
 (a) $a + b = b + a$ (b) $ab = ba$ (c) $a(b + c) = ab + ac$ (d) $(ab)c = a(bc)$
- 15 which of the following is irrational number?
 (a) 0 (b) π (c) $\frac{5}{7}$ (d) 15

Multiple choice question

unit#6

- 1 1 hours = -----?
(a) 360 sec (b) 1 sec (c) 60 sec (d) 3600 sec
- 2 the continued ratio of 5:4 and 4:3 is?
(a) 5:4:3 (b) 5:3:4 (c) 3:4:5 (d) 3:5:4
- 3 An interval b/w two happenings is called?
(a) time (b) distance (c) ratio (c) speed
- 4 areej can iron 5 shirts in 25 min. how many shirts will she iron in 40 minutes.
(a) 8 (b) 15 (c) 40 (d) 25
- 5 distance = speed x -----
(a) velocity (b) time (c) acceleration (d) retardation
- 6 if a : b is directly proportional to c : d then?
(a) $\frac{a}{b} = \frac{d}{c}$ (b) $\frac{a}{c} = \frac{b}{d}$ (c) $\frac{a}{b} = \frac{c}{d}$ (d) no one
- 7 the number of pencils bought and their cost has ----- variation.
(a) direct (b) inverse (c) continued (d) no one
- 8 if $2 : 6 = x : 18$, then $x = ?$
(a) 54 (b) 36 (c) 6 (d) 18
- 9 A relation in which one quantity increases by decreasing the other quantity is called -----
proportion
(a) direct (b) continued (c) inverse (d) both a & b
- 10 According to Islamic law of inheritance, widow's share is ----- of total property.
(a) $\frac{1}{6}$ (b) $\frac{1}{8}$ (c) $\frac{1}{2}$ (d) no share.
- 11 time and distance has ----- variation.
(a) inverse (b) direct (c) continued (d) no one
- 12 the combination of two ratios of three quantities is called ----- ratio.
(a) common (b) continued (c) uncommon (d) non-continued
- 13 the cost of 10 balls is Rs 300, what will be the value of each ball?
(a) Rs.30 (b) Rs.10 (c) Rs.3 (d) Rs.300
- 14 If you travel faster you need ----- time to cover a distance.
(a) more (b) less (c) equal (d) no one
- 15 the cost of 10 balls is Rs 300, what will be the value of each ball?
(a) Rs.30 (b) Rs.10 (c) Rs.3 (d) Rs.300

MULTIPLE CHOICE QUESTION

- 1 A ----- is a polynomial consisting of two terms.
(a) Monomial (b) Binomial (c) Trinomial (d) no one
- 2 In $2x^2 + y + 3z$, x, y, z are called?
(a) constant (b) operators (c) variables (d) co-efficient
- 3 A number that is placed before a variable is called?
(a) constant (b) co-efficient (c) variables (d) terms
- 4 $a \times (b + c) =$ -----?
(a) $(a \times b) + (a \times c)$ (b) $(a \times b) + c$ (c) $a \times b \times c$ (d) $a + (b \times c)$
- 5 $(z^4)^{-3}$ is equal to
(a) z^{12} (b) z^{-12} (c) z^{-64} (d) z^{-43}
- 6 $(12x^2y - 6xy) \div 2xy = ?$
(a) $6x^2y - 3xy$ (b) $3xy$ (c) $6x - 3$ (d) no one
- 7 $ax^0 + bx^0y = ?$
(a) $abxy$ (b) $a + bx^0y$ (c) $a + by$ (d) $ay + b$
- 8 $(x^5)^2 \div (x^3)^2$ is equal to
(a) x^{16} (b) x^{60} (c) x^6 (d) x^4
- 9 the sum of $2a + 3b - 7c$ and $5a + 9b + c$ is
(a) $7a + 12b - 6c$ (b) $-3a - 6b - 6c$ (c) $7a + 12b + 6c$ (d) $12a + 6b + 7c$
- 10 $2x, xy, 3x^2y$ are called algebraic -----?
(a) terms (b) constants (c) equations (d) algebra
- 11 $(-a) \times (-b) = ?$
(a) $-ab$ (b) $+ab$ (c) $-ba$ (d) both a & c
- 12 the degree of expression $x^5 + 2x^2y^2 + 3y^4$ is
(a) 4 (b) 2 (c) 6 (d) 5
- 13 the product of two terms with unlike sign is -----.
(a) positive (b) negative (c) both (d) no one
- 14 $(5b)^4 =$ -----
(a) $625b$ (b) $20b^4$ (c) $625b^4$ (d) $45b$
- 15 ----- is a symbol with fixed numerical value.
(a) variable (b) constant (c) coefficient (d) term