BALABHADRA SKILL DEVELOPMENT ACADEMY
MATHS FORMULA - 22

NUMBER SYSTEM

Sl	Situation	Formula
1	Symbols 0,1,2,3,4,5,6,7,8 and 9 are known as _____ in Hindu Arabic System.	digits
2	_____ is known as insignificant digit whereas the others are known as _____.	0, significant digits
3	____ and ____ are pairs of co-prime.	(7,9),(15,16)
4	In a numeral, the ____ of a digit is the value of the digit itself irrespective of its place in the numeral and the ____ of a digit changes according to the change of its place.	Face value, Place value
5	The numbers which are used in counting, are known as _____. The set of natural numbers is denote by ___.	Natural numbers, N
6	___ is the smallest natural number.	1
7	If zero is included in the set of natural numbers, then they are known as ____. The set of whole numbers is denoted by ____.	Whole numbers, W
8.	All natural numbers are ____ numbers.	Whole
9.	All whole numbers and their negative numbers are known as ____. The set of integers is denoted by ____.	Integers, I
10.	All natural numbers are known as positive integers.	$I^+=\{1,2,3,...\}$
11.	All negtaives of natural numbers are known as negative integers.	$I^+=\{-1,-2,-3,...\}$

12.	The numbers which can be expressed in the form of p/q, where p,q∈I and q≠0, are known as rational numbers. Set of rational numbers is denoted by Q.	$Q = \left\{\frac{p}{q}; p, q \in I \text{ and } q \neq 0\right\}$
13.	The numbers which cannot be expressed in the form of p/q, where p,q∈I and q≠0, are known as _____.	Irrational numbers
14.	π and e are _____ numbers. $\frac{22}{7}$ is a _____ number.	Irrational, rational
15.	Sum and difference of rational and irrational numbers are _____.	Irrational numbers
16.	Product of rational and irrational number is an _____.	Irrational number
17.	The numbers which are either rational or irrational, are known as _____ numbers and set of real numbers is denoted by _____.	Real, R
18.	All _____, _____ and _____ are real numbers.	Natural numbers, whole numbers, integers
19.	The numbers which are divisible by 2, are known as _____ numbers.	Even
20.	The numbers which are not divisible by 2, are known as _____ numbers.	Odd
21.	The numbers which are divisible by _____ and _____ are known as prime numbers.	1, number itself
22.	_____ is the only even prime numbers.	2
23.	Two natural numbers are known as coprimes, if their HCF is _____.	1
24.	The numbers which are divisible by atleast one number except 1 and the number itself, are known as _____.	Composite numbers
25.	_____ is neither prime nor composite.	1
26.	If the twice of last two digits of given number is subtracted from the number formed from remaining digits, the resultant is divisible by _____.	7

27.	$(x^n - a^n)$ is divisible by $(x - a)$ for all values of n	where $x \in n$
28.	$(x^n - a^n)$ is divisible by $(x + a)$ for even values of n	
29.	$(x^n + a^n)$ is divisible by $(x + a)$ for odd values of n	
30.	Total number of divisors of $N=a^p b^q c^r d^s$ is	$(p+1)(q+1)(r+1)(s+1)$ where a,b,c and d are prime numbers
31.	Total number of divisors of $N=a^p b^q c^r d^s$ excluding 1 and N itself is	$(p+1)(q+1)(r+1)(s+1)-2$ where a,b,c and d are prime numbers
32.	Arithmetic series or arithmetic progression is a sequence of numbers such that the difference between the consecutive terms is _____.	Constant
33.	The general form of an arithmetic series is	a,a+d,a+2d,a+3d,..... where,a= First term and d= common difference= Second term-First Term
34.	nth term of arithmetic series	$T_n = a + (n-1)d$
35.	Sum of n terms of arithmetic series	$S_n = \frac{n}{2}[2a + (n-1)d] = \frac{n}{2}[a + l]$ where, l is the last term
36.	Geometric series is a series with a constant ration between succesive terms. Thegeneral form of a geometric series is	$a, ar, ar^2, ar^3, \ldots$ Where,a= First term and r= common ratio=$\frac{\text{Second term}}{\text{First term}}$
37.	nth term of Geometric series	$T_n = ar^{n-1}$
38.	Sum of n terms of Geometric series	$S_n = \frac{a(1-r^n)}{1-r}$, if $r < 1$ $= \frac{a(r^n-1)}{r-1}$, if $r > 1$
39.	Sum of infinite terms of Geometric series	$S_\infty = \frac{a}{1-r}$
40.	1+2+3+....+n=	$\frac{n(n+1)}{2}$
41.	$1^2 + 2^2 + 3^2 + \cdots + n^2 =$	$\frac{n(n+1)(2n+1)}{6}$
42.	$1^3 + 2^3 + 3^3 + \cdots + n^3 =$	$\left(\frac{n(n+1)}{2}\right)^2$

43.	Sum of first n even numbers	$n(n+1)$
44.	Sum of even numbers upto n	$\frac{n}{2}\left(\frac{n}{2}+1\right)$
45.	Sum of first n odd numbers	n^2
46.	Number of prime factors of $a^p b^q c^r d^s$ is	p+q+r+s, where a,b,c and d are prime numbers