INDIAN SCHOOL NIZWA - WORKSHEET

MATHEMATICS

1. NUMBER SYSTEM

Name: _____ Date:_____ Class: IX Sec: ___

1.	Represent the following on the number line: i) $\sqrt{2}$, $\sqrt{3}$ on the same numberline ii) $\sqrt{5}$, $\sqrt{6}$ on the same number line.
2.	Insert two irrational numbers between $\frac{2}{3}$ and $\frac{3}{2}$
3.	Find the value of x if $(\sqrt{3})^x = 3^7$.
4.	If $2^{5x} \div 2^x = \sqrt[5]{32}$. Then find the value of x.
5.	Ealuate : $a^{x-y}.a^{y-z}.a^{z-x}$
6.	Which of the following rational numbers will have a terminating decimal or non-terminating repeating decimal expansion: a) $\frac{135}{50}$ b) $\frac{4}{11}$ c) $\frac{55}{9}$ d) $6\frac{3}{8}$ e) $\frac{5^2\times3^3}{2\times5^3\times27}$
7.	Classify the following numbers as terminating decimal or non-terminating recurring decimal or non-terminating non-recurring decimal a) 0.16666……. b) 0.2359872785…… c) 1.01001000100001……. d) 0.276967 e) 2.142857142857…….. e) $4.\overline{123456789}$ Also classify these given numbers as rational and irrational numbers.
8.	Classify the following numbers as rational or irrational numbers: a) $\sqrt{27}$ b) $\sqrt{36}$ c) $\sqrt{5}\times\sqrt{125}$ d) $2\sqrt{3}$ e) $\frac{7\sqrt{7}}{\sqrt{343}}$ f) $2+\sqrt{21}$ g) $5+\sqrt{23}-(\sqrt{25}+\sqrt{92})$
9.	Express the following in the form of $\frac{p}{q}$, where p and q are integers and q$\neq 0$. a) 0.0875 b) 2.123456789 c) 0.181818….. d) 0.437 d) 3.651
10.	Do as directed: a) Add $\sqrt{125}+2\sqrt{27}$ and $-5\sqrt{5}-\sqrt{3}$ b) Divide: $7\sqrt{5}$ by $-14\sqrt{125}$ c) Multiply: $2\sqrt{2}$ by $5\sqrt{2}$ d) Divide: $2\sqrt{216}-3\sqrt{27}$ by 3.

11.	If a=$2+\sqrt{3}$, find the value of a$-\frac{1}{a}$.
12.	Find the values of a and b : $\frac{7+\sqrt{5}}{7-\sqrt{5}} - \frac{7-\sqrt{5}}{7+\sqrt{5}} = a + \frac{7}{11}\sqrt{5}b.$
13.	Simplify : a) $(2\sqrt{2}+3\sqrt{3})(2\sqrt{2}-3\sqrt{3})$ b) $(2\sqrt{8}-3\sqrt{2})^2$ c) $(\sqrt{7}+\sqrt{6})^2$ d) $(6-\sqrt{2})(2+\sqrt{3})$
14.	If $p = 5-2\sqrt{6}$, find the value of $\left(x-\frac{1}{x}\right)^3$.
15.	Express **0.6+ 0.$\overline{7}$** + $0.4\overline{7}$ in the form of $\frac{p}{q}$.
16.	Simplify: $\frac{25^{\frac{5}{2}} \times 729^{\frac{1}{2}}}{125^{\frac{2}{3}} \times 27^{\frac{2}{3}} \times 8^{\frac{4}{3}}}$
17.	Evaluate: $\sqrt[4]{(81)^{-2}}$.
18.	If $x = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ and y=$\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$, then find the value of x^2+xy-y^2.
19.	If $\sqrt{2} = 1.414$ *and* $\sqrt{3} = 1.732$, then find the value of $\frac{4}{3\sqrt{3}-2\sqrt{2}} + \frac{3}{3\sqrt{3}+2\sqrt{2}}$.
20.	Simplify: $12\sqrt{18}-6\sqrt{20}-3\sqrt{50}+8\sqrt{45}$.
21.	Siimplify: $\sqrt[4]{\sqrt[3]{3^2}}$.
22.	Find the value of x, if $2^{5x} \div 2^x = \sqrt[5]{2^{20}}$.
23.	Simplify $\left(\frac{81}{16}\right)^{\frac{-3}{4}} \times \left[\left(\frac{25}{4}\right)^{\frac{-3}{2}} \div \left(\frac{5}{2}\right)^{-3}\right]$.
24.	If x is a positive real number and the exponents are rational numbers, then simplify: $\left(\frac{x^b}{x^b}\right)^{b+c-a} \times \left(\frac{x^c}{x^a}\right)^{c+a-b} \times \left(\frac{x^a}{x^b}\right)^{a+b-c}$