



ÉCOLE GLOBALE
INTERNATIONAL GIRLS' SCHOOL
Dehradun

HOLIDAY HOMEWORK
CLASS IX CBSE

SUMMER BREAK 2018-19
SUBJECT : MATHEMATICS

Project:

1. Prepare a presentation on any one of the following topics assigned and bring the project in a pen drive/ CD.

(a) History of Indian mathematicians which includes their contribution, relevant pictures.

(b) History of Zero with relevant pictures.

(c) Time line on history of mathematics with relevant pictures.

(d) Mathematics in daily life.(architecture, music, spirituality etc)

(e) Mathematics in nature.

2. Complete the following activities from Mathematics Lab Manual:

(a) Activity 1(square roots of natural numbers)

(b) Activity 6 (Factorization of polynomials)

MCO WORKSHEET -1 (Number System)

- Which of the following is true?
(a) Every whole number is a natural number (b) Every integer is a rational number
(c) Every rational number is an integer (d) Every integer is a whole number
- For Positive real numbers a and b, which is not true?
(a) $\sqrt{ab} = \sqrt{a}\sqrt{b}$ (b) $(a+\sqrt{b})(a-\sqrt{b}) = a^2 - b$
(c) $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$ (d) $(\sqrt{a}+\sqrt{b})(\sqrt{a}-\sqrt{b}) = a+b$
- Out of the following, the irrational number is
(a) $1.\bar{5}$ (b) $2.4\bar{77}$ (c) $1.2\bar{77}$ (d) π
- To rationalize the denominator of $\frac{1}{\sqrt{a+b}}$, we multiply this by
(a) $\frac{1}{\sqrt{a+b}}$ (b) $\frac{1}{\sqrt{a-b}}$ (c) $\frac{\sqrt{a+b}}{\sqrt{a+b}}$ (d) $\frac{\sqrt{a-b}}{\sqrt{a-b}}$
- The number of rational numbers between $\sqrt{3}$ and $\sqrt{5}$ is
(a) One (b) 3 (c) none (d) infinitely many
- If we add two irrational numbers, the resulting number
(a) is always an irrational number (b) is always a rational number
(c) may be a rational or an irrational number (d) always an integer
- The rationalizing factor of $7-2\sqrt{3}$ is
(a) $7-2\sqrt{3}$ (b) $7+2\sqrt{3}$ (c) $5+2\sqrt{3}$ (d) $4+2\sqrt{3}$
- If $\frac{1}{7} = 0.\overline{142857}$, then $\frac{4}{7}$ equals
(a) $0.\overline{428571}$ (b) $0.\overline{571428}$ (c) $0.\overline{857142}$ (d) $0.\overline{285718}$
- The value of n for which \sqrt{n} be a rational number is
(a) 2 (b) 4 (c) 3 (d) 5
- $\frac{3\sqrt{12}}{6\sqrt{27}}$ equals
(a) $\frac{1}{2}$ (b) $\sqrt{2}$ (c) $\sqrt{3}$ (d) $\frac{1}{3}$
- $(3+\sqrt{3})(3-\sqrt{2})$ equals
(a) $9-5\sqrt{2}-\sqrt{6}$ (b) $9-\sqrt{6}$ (c) $3+\sqrt{2}$ (d) $9-3\sqrt{2}+3\sqrt{3}-\sqrt{6}$

WORKSHEET – 2 (Solve and show the steps also)

1 If $\frac{5+2\sqrt{3}}{7+\sqrt{3}} = a - \sqrt{3}b$, find a and b where a and b are rational numbers.

2 If a and b are rational numbers and $\frac{4+3\sqrt{5}}{4-3\sqrt{5}} = a + b\sqrt{5}$, find the values of a and b.

3 If a and b are rational numbers and $\frac{2+\sqrt{3}}{2-\sqrt{3}} = a + b\sqrt{3}$, find the values of a and b.

4 If a and b are rational numbers and $\frac{\sqrt{11}-\sqrt{7}}{\sqrt{11}+\sqrt{7}} = a - b\sqrt{77}$, find the values of a and b.

5 Evaluate: $\frac{1}{\sqrt{2}+1} + \frac{1}{\sqrt{3}+\sqrt{2}} + \frac{1}{\sqrt{4}+\sqrt{3}} + \dots + \frac{1}{\sqrt{9}+\sqrt{8}}$

6 Rationalize the denominator of the following:

(i) $\frac{2}{\sqrt{3}-\sqrt{5}}$ (ii) $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ (iii) $\frac{6}{\sqrt{5}+\sqrt{2}}$ (iv) $\frac{1}{8+5\sqrt{2}}$

(v) $\frac{3-2\sqrt{2}}{3+2\sqrt{2}}$ (vi) $\frac{\sqrt{3}-1}{\sqrt{3}+1}$ (vii) $\frac{4}{\sqrt{7}+\sqrt{3}}$ (viii) $\frac{1}{5+3\sqrt{2}}$

7 Rationalise the denominator of the following:

(i) $\frac{2}{3\sqrt{3}}$ (ii) $\frac{16}{\sqrt{41}-5}$ (iii) $\frac{\sqrt{5}+\sqrt{2}}{\sqrt{5}-\sqrt{2}}$

(iv) $\frac{\sqrt{40}}{\sqrt{3}}$ (v) $\frac{3+\sqrt{2}}{4\sqrt{2}}$ (vi) $\frac{2+\sqrt{3}}{2-\sqrt{3}}$

(vii) $\frac{\sqrt{6}}{\sqrt{2}+\sqrt{3}}$ (viii) $\frac{3\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ (ix) $\frac{4\sqrt{3}+5\sqrt{2}}{\sqrt{48}+\sqrt{18}}$

8 Evaluate the following expressions:

$$(i) \left(\frac{625}{81} \right)^{-\frac{1}{4}} \quad (ii) 27^{\frac{2}{3}} \times 27^{\frac{1}{3}} \times 27^{-\frac{4}{3}} \quad (iii) (6.25)^{\frac{3}{2}}$$

$$(iv) (0.000064)^{\frac{5}{6}} \quad (v) (17^2 - 8^2)^{\frac{1}{2}}$$

9 Express $0.6 + 0.\bar{7} + 0.4\bar{7}$ in the form of $\frac{p}{a}$, where p and q are integers and $q \neq 0$

10 Simplify, by rationalizing the denominator $\frac{2\sqrt{6}}{\sqrt{2} + \sqrt{3}} + \frac{6\sqrt{2}}{\sqrt{6} + \sqrt{3}} - \frac{8\sqrt{3}}{\sqrt{6} + \sqrt{2}}$

Simplify, by rationalizing the denominator

$$11 \frac{1}{3 - \sqrt{8}} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{\sqrt{7} - \sqrt{6}} - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - 2}$$