# Cosmo School

## HOME ASSIGNMENT-2020

**CLASS: NINE**

**MATHEMATICS (Chapter-01 to Chapter-04)**

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## PART-A: CREATIVE QUESTIONS

**Observe the stems and write down the answer of the following creative questions.**

**1. If M = $0.4\dot{5}$, N = $0.13\dot{4}\dot{6}$ and f(x) = $\frac{x-1}{x+1}$ then-**

*a)* Express the set of rational and irrational number in set builder method. **

*b)* Determine: M + N, MN and M ÷ N. ****

*c)* Show that, $\frac{f(x) - f(\frac{1}{x^2})}{1 + f(\frac{1}{x^2})} = \frac{x^3 - 1}{x + 1}$. ****

**2. If $(m^2 + n^2)^2 = \sqrt[3]{125}$, $(m^2 - n^2)^2 = \sqrt[3]{64}$ and $x^2 = 9 + 4\sqrt{5}$ then -**

*a)* Resolve into factors: $x^2 - 2(a + \frac{1}{a})x + 4$. **

*b)* Prove that, $16m^2n^2(m^4 + n^4) = 18$. ****

*c)* Find the value of $\frac{x^{10} + 1}{x^5}$. ****

**3. If M = $xy^{a-1}$, N = $xy^{b-1}$ and O = $xy^{c-1}$ then -**

*a)* Solve: $\log_x \frac{1}{324} = -4$. **

*b)* $(b - c)\log M + (c - a)\log N + (a - b)\log O$ = What? ****

*c)* $(b + c)\log \frac{N}{O} + (c + a)\log \frac{O}{M} + (a + b)\log \frac{M}{N}$ = What? ****

## PART-B: SHORT QUESTIONS

**Write down the answer of the following questions in one word.**

***1)*** **If $\log_4 x = \frac{1}{2}$ then x = What?** *

Ans:

***2)*** **On which condition $\log_x x = 1$?** *

Ans:

***3)*** **If $\log x = \frac{1}{2}\log y$ then what is the value of $\log y^2$?** *

Ans:

***4)*** **What is the log of 3 if the base $3\sqrt{3}$?** *

Ans:

***5)*** **$\log_4 2 \times \log_{\sqrt{3}} 27$ = What?** *

Ans:

***6)*** **If $\frac{32}{(64)^x} = 8$ then what is the value of x?** *

Ans:

***7)*** **If $4^x - 4^{x-1} = 24$ then $(2x)^x$ = What?** *

Ans:

*8)* **What is the factor of $4x^2 + (4x^2)^{-1} - 2 + 4x - x^{-1}$?** *

Ans:

*9)* **If $x^2 = \sqrt[3]{27}$ then what is the value of x?** *

Ans:

*10)* **If $x + x^{-1} = 2$ then the value of $x^4 + x^3 + x^2 + x - x^{-1} - x^{-2} - x^{-3} - x^{-4}$ = What?** *

Ans:

*11)* **If $a^2 = 2\sqrt{30} + 11$ and a > 0 then find the value of a = What?** *

Ans:

*12)* **What will be the shape of the graph of 2x + 3y = 5?** *

Ans:

*13)* **What is the range of the function f(x) = 4?** *

Ans:

*14)* **If $\sqrt{x} - \frac{1}{\sqrt{x}} = 0$ then what is the value of $x + \frac{1}{x}$?** *

Ans:

*15)* **Which of the smallest member of the natural number set?** *

Ans:

*16)* **In how many types can integers be classified?** *

Ans:

*17)* **Convert $0.\dot{2}3\dot{4}$ into common fraction?** *

Ans:

*18)* **What kind of number $\sqrt{\frac{12}{25}}$ is?** *

Ans:

*19)* **All integers and fractional numbers are-** *

Ans:

*20)* **What is the value of $0.\dot{2} \div 0.0\dot{4}$?** *

Ans: