GURU NANAK PUBLIC SCHOOL

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SELF-STUDY MATERIAL

CLASS-VIII MATHEMATICS TOPIC – RATIONAL NUMBERS

1)	Give a rational number which when added to itself gives the same number.
2)	Write the additive Inverse of each a) $\frac{-2}{3}$ b) $\frac{2}{-5}$ c) $\frac{13}{15}$
3)	For a = $\frac{1}{3}$ and b = $\frac{3}{5}$ verify that -(a+b) = (-a) + (-b)
4)	Simplify :- (i) $\frac{-2}{5}-\left(\frac{-3}{10}\right)-\left(\frac{-4}{15}\right)$ (ii) $\frac{5}{3}-\frac{7}{6}+\left(\frac{-2}{3}\right)$ (iii) $\frac{-3}{2}+\left(\frac{5}{4}-\frac{7}{4}\right)$
5)	Verify that $(x \times y)^{-1} = x^{-1} \times y^{-1}$ When x = $\frac{-2}{3}$ and y = $\frac{-3}{5}$
6)	Find the reciprocal of each of the following. (i) $\frac{2}{3}$ (ii) $\frac{-1}{3}$ (iii) -3
7)	Verify that $(x+y)^{-1} \neq \frac{1}{x}+\frac{1}{y}$ when x = $\frac{2}{3}$ and y = $\frac{3}{5}$
8)	Identify the Properties Associated with the following :- (i) $\frac{-5}{9}\times\frac{3}{5}=\frac{3}{5}\times\left(\frac{-5}{9}\right)$ (ii) $\frac{1}{2}\times\left(\frac{2}{3}\times\frac{3}{4}\right)=\left(\frac{1}{2}\times\frac{2}{3}\right)\times\frac{3}{4}$

	(iii) $\frac{1}{2} \times \left(\frac{2}{3}+\frac{3}{4}\right)=\frac{1}{2} \times \frac{2}{3}+\frac{1}{2} \times \frac{3}{4}$
9)	Product of two rational numbers is $\frac{-32}{9}$. if one of the numbers is $\frac{-8}{3}$, find the other.
10)	Divide the sum of $2\frac{1}{4}$ and $5\frac{1}{5}$ by the product of $2\frac{1}{4}$ and $\frac{2}{3}$.
11)	Divide the difference of $\frac{12}{7}$ and $\frac{13}{4}$ by the product of $\frac{4}{5}$ and $\frac{25}{2}$.
12)	By what rational number should we divide $\frac{22}{7}$, so as to get the number $\frac{-11}{24}$.
13)	If $x=\frac{2}{3},\ y=\frac{4}{5},\ z=\frac{3}{4}$ show that $x \div (y + z) \neq (x \div y) + (x \div z)$
14)	Represent the following rational numbers on the number line. (i) $\frac{-3}{7}$ (ii) $\frac{8}{7}$
15)	Find two rational numbers between $\frac{1}{3}$ and $\frac{1}{5}$
16)	Find six rational numbers between $\frac{1}{9}$ and $\frac{1}{4}$
17)	A tin holds $16\frac{1}{2}$ litres of oil. How many such tins will be required to hold $313\frac{1}{2}$ litres of oil?
18)	Salma bought $2\frac{1}{2}$ kg onions at Rs. 12 per Kg. and $1\frac{3}{8}$ Kg. tomatoes at Rs. $16\frac{8}{11}$ per Kg. How much money did she give to the shopkeeper?
19)	Prove that $\frac{2}{7} \times \left(\frac{11}{22} \times \frac{-15}{22}\right)=\left(\frac{2}{7} \times \frac{11}{22}\right) \times \frac{-15}{22}$
20)	Product of two numbers is 92, if one of them is $15\frac{1}{3}$, find the other.

Answers :

2) (i) $\frac{2}{3}$ (ii) $\frac{2}{5}$ (iii) $\frac{-13}{15}$

4) (i) $\frac{1}{6}$ (ii) $-\frac{1}{6}$ (iii) -2

6) (i) $\frac{3}{2}$ (ii) -3 (iii) $-\frac{1}{3}$

8) (i) Commutative Property
(ii) Associative Property
(iii) Distributive Property over addition

9) $\frac{4}{3}$

10) $4\frac{29}{30}$

11) $\frac{-43}{280}$

12) $-6\frac{6}{7}$

15) $\frac{4}{15}, \frac{3}{10}$

16) $\frac{41}{360}, \frac{42}{360}, \frac{43}{360}, \frac{44}{360}, \frac{45}{360}, \frac{89}{360}$

17) 19 tins

18) Total Amount = Rs. 53

20) 6