

General Direction for students : Whatever be the notes provided , everything must be copied in the Maths copy and then do the homework in the same copy.

Assignment for Class X

Subject :Mathematics

Chapter 7: Ratio and Proportion (Part-1)

Topic : Ratio

- **Ratio:** If **a** and **b** are any two quantity of the same kind such that $b \neq 0$, the quotient $\frac{a}{b}$ is called the ratio of **a** and **b** . It is expressed as **a:b** and read as **a is to b**. Here , **a** is called the antecedent and **b** is called the consequent .
- **Compounded ratio:** when two or more ratios are multiplied term wise, the ratio thus obtained is called their compounded ratio.

if $a:b = \frac{a}{b}$ and $c:d = \frac{c}{d}$ are multiplied term wise , the compounded ratio becomes $ac:bd =$

$$\frac{ac}{bd}$$

- **Reciprocal ratio** of $a:b$ is $\frac{1}{a} : \frac{1}{b}$ or $b:a$
- **Duplicate ratio** of $a:b$ is $a^2:b^2$
- **Sub Duplicate** ratio of $a:b$ is $\sqrt{a} : \sqrt{b}$
- **TriPLICATE** ratio of $a:b$ is $a^3:b^3$
- **Sub TriPLICATE** ratio of $a:b$ is $a^{\frac{1}{3}} : b^{\frac{1}{3}}$ or $\sqrt[3]{a} : \sqrt[3]{b}$

Ex 7.1 Q2. ii) Find the compounded ratio of 4:5 , 5:7 and 9:11

$$\Rightarrow \text{Required compounded ratio} = \frac{4}{5} \times \frac{5}{7} \times \frac{9}{11} = \frac{36}{77} = 36:77$$

Ex 7.1. Q3. ii) Find the duplicate ratio of $\sqrt{5} : 7$

$$\Rightarrow \text{The duplicate ratio of } \sqrt{5} : 7 \text{ is } (\sqrt{5})^2 : 7^2 \text{ i.e. } 5:49$$

Ex 7.1. Q4. iii) Find the triplicate ratio of $1^3 : 2^3$

$$\Rightarrow \text{The triplicate ratio of } 1^3 : 2^3 \text{ is } (1^3)^3 : (2^3)^3 \text{ i.e. } 1:512$$

Ex 7.1. Q5. iii) Find the sub - duplicate ratio of $9a^2 : 49b^2$

$$\Rightarrow \text{The sub -duplicate ratio of } 9a^2 : 49b^2 \text{ is } \sqrt{9a^2} : \sqrt{49b^2} \text{ i.e. } 3a : 7b$$

Ex 7.1. Q5. iii) Find the sub - triplicate ratio of $27a^3 : 64b^3$

\Rightarrow The sub-triplicate ratio of $27a^3:64b^3$ is $\sqrt[3]{27a^3}:\sqrt[3]{64b^3}$ i.e. $3a:4b$

Ex7.1 Q. 8.

Given ratios are $\frac{2}{3}, \frac{17}{21}, \frac{11}{14},$ and $\frac{5}{7}$

We convert them into equivalent like fractions

L.C.M. of 3, 21, 14, 7 = 42

$$\frac{2}{3} = \frac{2 \times 14}{3 \times 14} = \frac{28}{42}, \quad \frac{17}{21} = \frac{17 \times 2}{21 \times 2} = \frac{34}{42}, \quad \frac{11}{14} = \frac{11 \times 3}{14 \times 3} = \frac{33}{42}, \quad \frac{5}{7} = \frac{5 \times 6}{7 \times 6} = \frac{30}{42}$$

As $28 < 30 < 33 < 34$, $\frac{28}{42} < \frac{30}{42} < \frac{33}{42} < \frac{34}{42}$

$$\Rightarrow \frac{2}{3} < \frac{5}{7} < \frac{11}{14} < \frac{17}{21}$$

Hence, the given ratios in ascending order of magnitude are

2:3, 5:7, 11:14, and 17:21

Homework : 3iii), Q4.ii), Q5ii), Q6ii), Q7. iii), 9ii), Q10.ii)Q13iii), Q15i), 16.ii)Q20ii)

Solutions of following problems are discussed in the video link provided to you by the school:

Q2iii), Q4i), Q5i), Q6i), Q7i), Q9i), 10i), 12i), Q13ii), Q14ii), Q17, Q18i)Q19ii), Q20i)