

Fractions

Recall

1) **Proper Fraction:** A fraction that represent a part of a whole. (Numerator less than the denominator.)

$$\text{Eg : } \frac{4}{7}$$

2) **Improper Fraction:** It is a combination of a whole and a proper fraction. (Numerator greater than the denominator.) Eg : $\frac{7}{4}$

∴ An improper fraction is written as a mixed fraction. i.e., $\frac{7}{4} = 1 \frac{3}{4}$

3) **Like Fraction:** Two or more fractions having same denominator are called like fractions.

4) **Unlike Fractions:** Fraction with different denominators are called unlike fractions.

Problems for Practice:

1) **Add:** a) $2 \frac{1}{6} + \frac{1}{5}$

b) $6 \frac{2}{3} + 1 \frac{1}{6} + 7 \frac{1}{2}$

c) $49 + 2 \frac{4}{5}$

2) **Subtract :** a) $\frac{13}{65} - \frac{1}{5}$

b) $6 \frac{1}{9}$ from $8 \frac{1}{3}$

c) $19 - 18 \frac{1}{4}$

3) **Multiply:** a) $7 \frac{1}{2}$ by $3 \frac{1}{4}$

b) $8 \frac{1}{4} \times 3 \frac{1}{4}$

c) $7 \times 2 \frac{1}{3} \times 4 \frac{5}{7}$

4) **Divide :** a) $8 \frac{1}{2} \div 4 \frac{1}{4}$

b) $12 \frac{1}{2} \div 2$

c) $7 \div 1 \frac{1}{4}$

Rational Numbers

To Recall : The difference between fractions and the rational numbers.

Fractions : It is in the form of $\frac{p}{q}$ where p and q are whole numbers and $q \neq 0$. Eg : $\frac{3}{4}$

Rational Numbers: It is also in the form of $\frac{p}{q}$ but p and q are integers and $q \neq 0$. i.e., p and q could be +ve or -ve and p could 0 but q is not equal to 0.

$$\text{Eg : i) } -\frac{1}{2} \quad \text{ii) } -7 \frac{1}{3} \quad \text{iii) } 0 \text{ (as 0 can be written as } \frac{0}{1} \text{ or } \frac{0}{2} \text{ And so on)}$$

Remember :

- 1) 0 is a rational number
- 2) Every integer is a rational number. Eg : - 3 , +100
- 3) Every fraction is a rational number. Eg : $\frac{7}{11}$, $\frac{9}{10}$
- 4) But all rational numbers are not fractions. Eg : $-\frac{1}{2}$ is a rational number but it is not a fraction
- 5) Between any two rational numbers, there are infinite rational numbers.
Eg : Rational numbers between -1 and 0

$$\text{i.e., } \frac{-10}{10} \text{ and } \frac{0}{10}$$

$$\text{Ans: } \frac{-9}{10} , \frac{-8}{10} , \frac{-6}{10} , \frac{-3}{10} , \frac{-2}{10}$$

Problems for practice:

I) Pickout 5 rational numbers between the given set of rational numbers.

- 1) $\frac{-2}{5}$ and $\frac{-1}{4}$ 2) -3 and 4 3) 0 and 1 4) 5 and $\frac{11}{2}$ 5) -1 and 0

II) Add:

- 1) $\frac{-2}{3}$ and $\frac{1}{2}$ 2) $\frac{4}{9}$ and $\frac{-2}{5}$ 3) $\frac{-11}{2}$ and $-5\frac{1}{2}$
- 4) $-7\frac{1}{2} + \left(-2\frac{1}{3}\right) + \left(\frac{-9}{12}\right)$ 5) $\frac{-15}{22} + \left(\frac{-3}{11}\right)$

III) Subtract:

- 1) $\frac{-5}{9} - \left(\frac{-2}{3}\right)$ 2) $-7\frac{1}{2} - \left(\frac{-1}{8}\right)$ 3) $10 - \left(-8\frac{4}{5}\right)$
- 4) $0 - \left(-8\frac{7}{11}\right)$ 5) $\frac{3}{4}$ from $\frac{-15}{28}$

IV) Multiply:

- 1) $3\frac{1}{9} \times \frac{-3}{28}$ 2) $-9\frac{1}{7} \times 14$ 3) $17 \times \left(\frac{-5}{34}\right) \times \left(\frac{-4}{18}\right)$
- 4) $\frac{-3}{8} \times \frac{1}{2} \times 0 \times \left(\frac{-2}{9}\right)$ 5) $\left(\frac{-5}{6}\right) \times \frac{9}{10} \times \left(\frac{-11}{15}\right)$

V) Divide:

1) $\frac{-8}{11} \div \frac{4}{22}$

2) $0 \div \left(\frac{-3}{5}\right)$

3) $\left(-4\frac{1}{2}\right) \div \left(-2\frac{1}{4}\right)$

4) $-51 \div \left(-8\frac{1}{2}\right)$

5) $\left(-23\frac{1}{2}\right) \div (-2)$

VI) Arrange in ascending order and descending order.

1) $3\frac{1}{4}$, $-5\frac{1}{2}$, $-2\frac{1}{7}$, 0

2) $-\frac{1}{7}$, $\frac{4}{35}$, $\frac{-2}{35}$, $\frac{-8}{5}$

3) -7 , $\frac{8}{11}$, 1 , 0 , -9

4) $-\frac{1}{4}$, 1 , $\frac{3}{4}$, $-\frac{1}{2}$, $-\frac{1}{8}$

5) $-2\frac{1}{2}$, $5\frac{1}{6}$, -5 , $\frac{1}{6}$

VII) Represent the following numbers on number line.

1) $-\frac{1}{8}$, $\frac{2}{8}$, $\frac{-3}{8}$, $\frac{4}{8}$, 0

2) $\frac{1}{2}$, $\frac{-3}{4}$, $-\frac{1}{4}$, 0 , $\frac{1}{4}$

VII) 1) Write 5 rational numbers greater than -20

2) Write 5 rational numbers less than -3