Chapter 07 Fractions

Class : 6th Standard NCERT School: Christ, Harividyalaya Date Created : Jan 2026

MINDMAP

1. Fraction: A number representing part of a whole.
    - Written as Numerator / Denominator
    - Example: 3/4 → 3 parts out of 4 equal parts

2. Types of Fractions:

    a) Proper Fraction: Numerator < Denominator (e.g., 2/5)

    b) Improper Fraction: Numerator ≥ Denominator (e.g., 7/3)

    c) Mixed Fraction: Whole number + Proper fraction (e.g., 2 1/3)

2. Equivalent Fractions:
    - Fractions representing same value
    - Multiply/Divide numerator & denominator by same number
    - Example: 1/2 = 2/4 = 3/6
3. Simplest Form:
    - HCF of numerator & denominator is 1
    - Example: 8/12 → divide by 4 → 2/3
4. Like & Unlike Fractions:
    - Like: Same denominator (e.g., 2/7, 5/7)
    - Unlike: Different denominators (e.g., 1/3, 2/5)
5. Comparing Fractions:
    - a) Like fractions: Compare numerators 3/8 > 1/8
    - b) Unlike fractions: Convert to like fractions using LCM
    - Compare 2/3 and 3/4 → LCM of 3,4 = 12 → 8/12 vs 9/12 → 3/4 > ⅔
6. Addition & Subtraction:
    - a) Like fractions: Add/subtract numerators, keep denominator 2/7 + 3/7 = 5/7
    - b) Unlike fractions: Make denominators same, then add/subtract
    - 1/2 + 1/3 = 3/6 + 2/6 = 5/6
7. Fraction on Number Line:
    - Divide segment between 0 and 1 into equal parts
    - Example: 2/5 → 2nd mark after dividing 0–1 into 5 parts

NOTES WITH RELEVANT EXAMPLES

1. Proper, Improper & Mixed Fractions
    - Proper: 4/9 (numerator < denominator)
    - Improper: 11/5
    - Mixed: 3 2/5 = (3×5 + 2)/5 = 17/5
2. Converting Mixed ↔ Improper
    - 4 3/7 = (4×7 + 3)/7 = 31/7
    - 19/6 = 3 1/6
3. Equivalent Fractions

   - 2/5 = (2×2)/(5×2) = 4/10
   - 9/12 = (9÷3)/(12÷3) = 3/4
4. Simplest Form
   - HCF of 18 and 24 is 6 → 18/24 = 3/4
5. Comparing Unlike Fractions
   - Compare 5/6 and 7/9
     LCM of 6 & 9 = 18
     5/6 = 15/18, 7/9 = 14/18 → 5/6 > 7/9
6. Addition/Subtraction
   - 3/8 + 1/4 = 3/8 + 2/8 = 5/8
   - 7/10 – 1/5 = 7/10 – 2/10 = 5/10 = 1/2
7. Fraction on Number Line
   - To show 3/4: Mark 0, 1; divide into 4 equal parts; 3rd mark = 3/4

UNIT TEST

1. Write the fraction for:
   a) 5 parts out of 9 equal parts
   b) 0 shaded parts out of 7
2. Identify as proper, improper or mixed:
   a) 7/10
   b) 15/4
   c) 2 3/8
3. Convert:
   a) 3 2/5 into improper fraction
   b) 23/6 into mixed fraction
4. Find two equivalent fractions of 4/7
5. Reduce 36/48 to simplest form
6. Are 5/9 and 20/36 equivalent? Show working
7. Compare:
   a) 3/5 and 3/7
   b) 2/3 and 5/8
8. Add: 1/6 + 3/4
9. Subtract: 7/9 – 1/3
10. Represent 4/5 on a number line

WORKSHEET

1. Shade the given fractions in the figures:
   a) 2/3 of a rectangle
   b) 5/8 of a circle
2. Write 3 proper and 3 improper fractions
3. Fill in the blanks:
   a) 5/6 = */18*
   b) 25/35 = 5/
4. Arrange in ascending order: 2/3, 5/6, 1/2
5. Solve:
   a) 2/7 + 3/14
   b) 9/10 – 2/5
6. Meena ate 1/4 of a pizza and Reena ate 1/3. Who ate more?
7. A ribbon is 5/6 m long. If 1/3 m is cut off, how much is left?

8. Write the fraction shown by the arrow on the number line (0 to 1 divided into 5 equal parts; arrow at 4th part)
9. Express 1 as a fraction with denominator 9
10. Find the sum: 1 1/2 + 2 ⅓

SOLUTIONS – UNIT TEST

1. a) 5/9
   b) 0/7 = 0
2. a) Proper
   b) Improper
   c) Mixed
3. a) (3×5 + 2)/5 = 17/5
   b) 23 ÷ 6 = 3 remainder 5 → 3 5/6
4. Multiply numerator & denominator by 2 and 3:
   8/14, 12/21
5. HCF of 36 & 48 = 12 → 36÷12 / 48÷12 = 3/4
6. 5/9 = (5×4)/(9×4) = 20/36 → Yes, equivalent
7. a) Same numerator → smaller denominator is larger → 3/5 > 3/7
   b) LCM of 3,8 = 24 → 2/3 = 16/24, 5/8 = 15/24 → 2/3 > 5/8
8. LCM of 6,4 = 12 → 1/6 = 2/12, 3/4 = 9/12 → 2/12 + 9/12 = 11/12
9. 1/3 = 3/9 → 7/9 – 3/9 = 4/9
10. Divide 0–1 into 5 equal parts; mark point at 4th division → 4/5

SOLUTIONS – WORKSHEET

1. (Shading to be done by student; fractions represent parts)
2. Proper: 1/2, 3/7, 4/9
   Improper: 9/5, 11/3, 15/10
3. a) 5/6 = x/18 → x = (5×18)/6 = 15
   b) 25/35 = 5/x → x = (5×35)/25 = 7
4. LCM of 2,3,6 = 6 → 1/2 = 3/6, 2/3 = 4/6, 5/6 → Ascending: 1/2, 2/3, 5/6
5. a) LCM 14 → 2/7 = 4/14 → 4/14 + 3/14 = 7/14 = 1/2
   b) 2/5 = 4/10 → 9/10 – 4/10 = 5/10 = 1/2
6. LCM of 4,3 = 12 → 1/4 = 3/12, 1/3 = 4/12 → Reena ate more
7. 1/3 = 2/6 → 5/6 – 2/6 = 3/6 = 1/2 m
8. 4/5
9. 9/9
10. 1 1/2 = 3/2, 2 1/3 = 7/3 → LCM 6 → 9/6 + 14/6 = 23/6 = 3 5/6