

CHAPTER TWO

FRACTIONS

ADDITION:

Evaluate the following fractions:

$$1. \frac{1}{2} + \frac{1}{4} = \quad 2. \frac{2}{3} + \frac{1}{2} =$$

$$3. \frac{3}{4} + \frac{2}{3} = \quad 4. \frac{3}{5} + \frac{2}{3} =$$

$$5. 1\frac{1}{2} + \frac{1}{4} = \quad 6. 2\frac{2}{3} + 1\frac{1}{3} =$$

$$7. 3\frac{1}{2} + 1\frac{1}{3} = \quad 8. 4\frac{1}{2} + 1\frac{1}{4} =$$

Soln.

$$1. \frac{1}{2} + \frac{1}{4} \quad 2. \frac{2}{3} + \frac{1}{2}$$

$$\frac{2+1}{4} = \frac{3}{4} \quad \frac{4+3}{6} = \frac{7}{6} = 1\frac{1}{6}$$

$$3. \frac{3}{4} + \frac{2}{3} \quad 4. \frac{3}{5} + \frac{2}{3}$$

$$\frac{9+8}{12} = \frac{17}{12} = 1\frac{5}{12} \quad \frac{9+10}{15} = \frac{19}{15} = 1\frac{4}{15}$$

$$5. 1\frac{1}{2} + \frac{1}{4} \quad 6. 2\frac{2}{3} + 1\frac{1}{3}$$

$$= \frac{3}{2} + \frac{1}{4} \quad = \frac{8}{3} + \frac{4}{3}$$

$$\frac{6+1}{4} = \frac{7}{4} = 1\frac{3}{4} \quad \frac{8+4}{3} = \frac{12}{3} = 4$$

$$7. 3\frac{1}{2} + 1\frac{1}{3} = \frac{7}{2} + \frac{4}{3} \quad 8. 4\frac{1}{2} + 1\frac{1}{4} = \frac{9}{2} + \frac{5}{4}$$

$$\frac{21+8}{6} = \frac{29}{6} = 4\frac{5}{6} \frac{18+5}{4} = \frac{23}{4} = 5\frac{3}{4}$$

Q2. Evaluate the following fractions:

$$1. \frac{1}{3} + \frac{1}{2} + \frac{2}{5} \quad 2. \frac{1}{4} + \frac{1}{2} + \frac{2}{5}$$

$$3. \frac{2}{3} + \frac{1}{6} + \frac{3}{4} \quad 4. 1\frac{1}{2} + 2\frac{2}{3} + \frac{1}{6}$$

$$5. 2\frac{1}{2} + 1\frac{1}{3} + 1\frac{3}{4} \quad 6. 1\frac{1}{4} + 1\frac{1}{5} + 1\frac{2}{10}$$

$$7. 1\frac{1}{5} + 3\frac{2}{3} + 2\frac{1}{2} \quad 8. 3\frac{1}{4} + 2\frac{1}{2} + 1\frac{1}{8}$$

Soln.

$$1. \frac{1}{3} + \frac{1}{2} + \frac{2}{5} \quad 2. \frac{1}{4} + \frac{1}{2} + \frac{2}{5}$$

$$\frac{10+15+12}{30} = \frac{37}{30} = 1\frac{7}{30} \frac{5+10+8}{20} = \frac{23}{20} = 1\frac{3}{20}$$

$$3. \frac{2}{3} + \frac{1}{6} + \frac{3}{4} \quad 4. 1\frac{1}{2} + 2\frac{2}{3} + \frac{1}{6}$$

$$\frac{8+2+9}{12} = \frac{19}{12} = 1\frac{7}{12} \frac{3}{2} + \frac{8}{3} + \frac{1}{6} = \frac{9+16+1}{6} = \frac{26}{6} = 4\frac{2}{6} = 4\frac{1}{3}$$

$$5. 2\frac{1}{2} + 1\frac{1}{3} + 1\frac{3}{4} \quad 6. 1\frac{1}{4} + 2\frac{1}{5} + 1\frac{1}{10}$$

$$= \frac{5}{2} + \frac{4}{3} + \frac{7}{4} \quad = \frac{5}{4} + \frac{11}{5} + \frac{12}{10}$$

$$\frac{30+16+21}{12} = \frac{67}{12} = 5\frac{7}{12} = \frac{93}{20} \\ = 4\frac{13}{20}$$

$$7. 1\frac{1}{5} + 3\frac{2}{3} + 2\frac{1}{2} \quad 8. 3\frac{1}{4} + 2\frac{1}{2} + 1\frac{1}{8}$$

$$= \frac{6}{5} + \frac{11}{3} + \frac{5}{2} = \frac{13}{4} + \frac{5}{2} + \frac{9}{8}$$

$$= \frac{36+110+75}{30} = \frac{221}{30} = 7\frac{11}{30} \quad = \frac{26+20+9}{8} = \frac{55}{8} = 6\frac{7}{8}$$

SUBTRACTION:

Q1. Evaluate the following:

$$1. \frac{1}{2} - \frac{1}{4} = \quad 2. \frac{2}{3} - \frac{1}{2} =$$

$$2. \frac{3}{4} - \frac{2}{3} = \quad 4. \frac{2}{3} - \frac{3}{5} =$$

$$5. 2\frac{2}{3} - 1\frac{1}{3} = \quad 6. 3\frac{1}{2} - 3\frac{1}{3}$$

$$7. 4\frac{1}{2} - 1\frac{1}{4} = \quad 8. 1\frac{3}{4} - 1\frac{2}{3} =$$

Soln.

$$1. \frac{1}{2} - \frac{1}{4} \quad 2. \frac{2}{3} - \frac{1}{2}$$

$$2. \frac{2-1}{4} = \frac{1}{4} \quad \frac{4-3}{6} = \frac{1}{6}$$

$$3. \frac{3}{4} - \frac{2}{3} \quad 4. \frac{2}{3} - \frac{3}{5}$$

$$\frac{9-8}{12} = \frac{1}{12} \quad \frac{10-9}{15} = \frac{1}{15}$$

$$5. 2\frac{2}{3} - 1\frac{1}{3} \quad 6. 3\frac{1}{2} - 3\frac{1}{2}$$

$$= \frac{8}{3} - \frac{4}{3} = \frac{8-4}{3} = \frac{4}{3} = 1\frac{1}{3} \quad \frac{17}{32} - \frac{10}{3} = \frac{21-20}{6} = \frac{1}{6}$$

$$7. 4\frac{1}{2} - 1\frac{1}{4} \quad 8. 1\frac{3}{4} - 1\frac{2}{3}$$

$$= \frac{9}{2} - \frac{5}{4} \quad = \frac{7}{4} - \frac{5}{3}$$

$$\frac{18-5}{4} = \frac{13}{4} = 3\frac{1}{4} \quad = \frac{21-20}{12} = \frac{1}{12}$$

Q2. Find the values of the following fractions:

$$1. \frac{1}{2} - \frac{1}{3} - \frac{2}{15}$$

$$2. \frac{1}{2} - \frac{1}{4} - \frac{1}{10}$$

$$3. \frac{3}{2} - \frac{1}{4} - \frac{2}{6}$$

$$4. 2\frac{1}{3} - 1\frac{1}{3} - 1\frac{1}{2}$$

$$5. \frac{1}{2} - \frac{1}{12} - \frac{1}{3}$$

$$6. 3\frac{1}{2} - 1\frac{1}{4} - 1\frac{1}{2}$$

Soln.

$$1. \frac{1}{2} - \frac{1}{3} - \frac{2}{15} \\ \frac{15-10-4}{30} = \frac{1}{30}$$

$$2. \frac{1}{2} - \frac{1}{4} - \frac{1}{10} \\ \frac{10-5-2}{20} = \frac{3}{20}$$

$$3. \frac{3}{2} - \frac{1}{4} - \frac{2}{6} \\ \frac{18-3-4}{12} = \frac{11}{12}$$

$$4. 2\frac{1}{3} - 1\frac{1}{3} - 1\frac{1}{2} \\ \frac{7}{3} - \frac{4}{3} - \frac{3}{2} = \frac{14-8-9}{6}$$

$$= \frac{6-9}{6} = -\frac{3}{6} = -\frac{1}{2}$$

$$5. \frac{1}{2} - \frac{1}{12} - \frac{1}{3} \\ \frac{6-1-4}{12} = \frac{1}{12}$$

$$6. 3\frac{1}{2} - 1\frac{1}{4} - 1\frac{1}{2} \\ \frac{7}{2} - \frac{5}{4} - \frac{3}{2} = \frac{14-5-6}{4} = \frac{3}{4}$$

MULTIPLICATION OF FRACTIONS:

N/B: In fraction multiplication, the top numbers are multiplied together, and the downward ones are also multiplied together.

Q1. Evaluate the following:

$$1. \frac{1}{3} \times \frac{1}{2}$$

$$2. \frac{2}{3} \times \frac{1}{4}$$

$$3. \frac{2}{4} \times \frac{3}{5}$$

$$4. \frac{4}{6} \times \frac{3}{4}$$

$$5. \frac{5}{6} \times \frac{4}{6}$$

$$6. \frac{5}{8} \times \frac{3}{10}$$

$$7. \frac{2}{3} \times \frac{1}{4} \times \frac{1}{2}$$

$$8. \frac{1}{2} \times \frac{1}{3} \times \frac{1}{4}$$

$$9. \frac{2}{3} \times \frac{2}{4} \times \frac{5}{6}$$

$$10. \frac{3}{2} \times \frac{4}{5} \times \frac{2}{3}$$

Soln.

$$1. \frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$$

$$2. \frac{2}{3} \times \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$$

$$3. \frac{2}{4} \times \frac{3}{5} = \frac{6}{20}$$

$$4. \frac{4}{6} \times \frac{3}{4} = \frac{12}{24}$$

$$= \frac{3}{10}$$

$$= \frac{1}{2}$$

$$5. \frac{5}{6} \times \frac{4}{6} = \frac{20}{36} = \frac{10}{18}$$

$$6. \frac{5}{8} \times \frac{3}{10} = \frac{15}{80} = \frac{3}{16}$$

$$7. \frac{2}{3} \times \frac{1}{4} \times \frac{1}{2}$$

$$8. \frac{1}{2} \times \frac{1}{3} \times \frac{1}{4} = \frac{1}{24}$$

$$= \frac{2}{24} = \frac{1}{12}$$

$$9. \frac{2}{3} \times \frac{2}{4} \times \frac{5}{6}$$

$$10. \frac{3}{2} \times \frac{4}{5} \times \frac{2}{3}$$

$$= \frac{20}{72} = \frac{5}{18}$$

$$= \frac{24}{30} = \frac{12}{15}$$

Q2. Evaluate the following fractions:

$$1. 1\frac{1}{2} \times 1\frac{3}{4}$$

$$2. 2\frac{1}{3} \times 1\frac{2}{3}$$