# **CHAPTER TWO**

## **FRACTIONS**

### **ADDITION:**

Evaluate the following fractions:

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

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

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

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

5. 
$$1\frac{1}{2} + \frac{1}{4} = 6. 2^{2}/_{3} + 1^{1}/_{3} =$$

6. 
$$2^2/_3 + 1^1/_3 =$$

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

8. 
$$4\frac{1}{2} + 1^{1}/4 =$$

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

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

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

$$\frac{2+1}{4} = \frac{3}{4}$$
  $\frac{4+3}{6} = \frac{7}{6} = 1^{1}/6.$ 

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

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

$$\frac{9+8}{12} = \frac{17}{12} = \frac{15}{12}$$

$$\frac{9+8}{12} = \frac{17}{12} = \frac{15}{12} = \frac{9+10}{15} = \frac{19}{15} = \frac{14}{15}$$

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

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

5. 
$$1\frac{1}{2} + \frac{1}{4}$$
 6.  $2^2/_3 + 1^1/_3$ 

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

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

$$\frac{8+4}{3} = \frac{12}{3} = 4.$$

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

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

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

$$\frac{18+5}{4} = \frac{23}{4} = 5^3/4$$

Q2. Evaluate the following fractions:

$$1.\,\frac{1}{3} + \frac{1}{2} + \frac{2}{5}$$

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

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

3. 
$$\frac{2}{3} + \frac{1}{6} + \frac{3}{4}$$
 4.  $1\frac{1}{2} + 2^{2}/_{3} + \frac{1}{6}$ 

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

6. 
$$1\frac{1}{4} + 1^{1}/_{5} + 1^{2}/_{10}$$

7. 
$$1^{1}/_{5} + 3^{2}/_{3} + 2^{1}/_{2}$$
 8.  $3^{1}/_{4} + 2^{1}/_{2} + 1^{1}/_{8}$ 

8. 
$$3\frac{1}{4} + 2^{1}/_{2} + 1^{1}/_{8}$$

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

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

$$\frac{10+15+12}{30} = \frac{37}{30} = \frac{17}{30} = \frac{5+10+8}{20} = \frac{23}{20} = \frac{13}{20}$$

$$\frac{5+10+8}{20} = \frac{23}{20} = 1^{3}/_{20}$$

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

3. 
$$\frac{2}{3} + \frac{1}{6} + \frac{3}{4}$$
 4.  $1\frac{1}{2} + 2^{2}/3 + \frac{1}{6} =$ 

$$\frac{8+2+9}{12} = \frac{19}{12} = \frac{17}{12}$$

$$\frac{8+2+9}{12} = \frac{19}{12} = \frac{17}{12}. \qquad \frac{3}{2} + \frac{8}{3} + \frac{1}{6} = \frac{9+16+1}{6} = \frac{26}{6} = \frac{4^2}{6} = 4^{1/3}.$$

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

6. 
$$1\frac{1}{4} + 2^{1}/_{5} + 1^{2}/_{10}$$

$$=\frac{5}{2}+\frac{4}{3}+\frac{7}{4}$$

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

$$\frac{30+16+21}{12} = \frac{67}{12} = 5^{-7}/_{12}. \qquad \frac{25+44+24}{20} = \frac{93}{20}$$

$$\frac{25+44+24}{20} = \frac{93}{20}$$
$$= 4^{13}/20$$

7. 
$$1^{1/5} + 3^{2/3} + 2^{1/2}$$

7. 
$$1^{1}/_{5} + 3^{2}/_{3} + 2^{1}/_{2}$$
 8.  $3^{1}/_{4} + 2^{1}/_{2} + 1^{1}/_{8}$ 

$$=\frac{6}{5}+\frac{11}{3}+\frac{5}{2}$$

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

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

$$\frac{26+20+9}{8} = \frac{55}{8} = 6\frac{7}{8}.$$

#### SUBTRACTION:

Q1. Evaluate the following:

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

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

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

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

5. 
$$2^2/_3 - 1^1/_3 =$$
 6.  $3^1/_2 - 3^1/_3$ 

6. 
$$3^{1/2} - 3^{1/3}$$

$$7.4\frac{1}{2} - 1\frac{1}{4} =$$

7. 
$$4\frac{1}{2} - 1\frac{1}{4} = 8. 1\frac{3}{4} - 1^{2}/_{3} =$$

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

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

$$\frac{2-1}{4} = \frac{1}{4}$$

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

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

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

$$\frac{9-8}{12} = \frac{1}{12}.$$

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

5. 
$$2^2/_3 - 1^1/_3$$
 6.  $3^1/_2 - 31/_3$ 

$$6.3^{1}/2 - 31/_{3}$$

$$=\frac{8}{3}-\frac{4}{3}=\frac{8-4}{3}=\frac{4}{3}=1\frac{1}{3}.$$
  $\frac{7}{2}-\frac{10}{3}=\frac{21-20}{6}=\frac{1}{6}.$ 

$$\frac{7}{2} - \frac{10}{3} = \frac{21 - 20}{6} = \frac{1}{6}.$$

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

$$=\frac{7}{4}-\frac{5}{3}$$

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

$$\frac{21-20}{12} = \frac{1}{12}$$
.

Q2. Find the values of the following fractions:

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

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

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

$$3.\frac{3}{2} - \frac{1}{4} - \frac{2}{6}$$
  $4.2\frac{1}{3} - 1\frac{1}{3} - 1\frac{1}{2}$ 

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

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

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

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

$$\frac{15-10-4}{30} = \frac{1}{30} \qquad \qquad \frac{10-5-2}{20} = \frac{3}{20}$$

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

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

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

$$\frac{18-3-4}{12} = \frac{11}{12} \,.$$

$$\frac{18-3-4}{12} = \frac{11}{12} \,. \qquad \frac{7}{3} - \frac{4}{3} - \frac{3}{2} = \frac{14-8-9}{6}$$

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

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

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

$$\frac{6-1-4}{12} = \frac{1}{12}$$

$$\frac{6-1-4}{12} = \frac{1}{12} . \qquad \qquad \frac{7}{2} - \frac{5}{4} - \frac{3}{2} = \frac{14-5-6}{4} = \frac{3}{4} .$$

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

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

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

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

$$5.\frac{5}{6} \times \frac{4}{6}$$
  $6.\frac{5}{8} \times \frac{3}{10}$ 

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

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

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

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

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

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

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

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

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

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