NOTES: **Adding and Subtracting Fractions with LIKE Denominators**

Simplest Form – the form of a fraction when the GCF of the numerator and **denominator is 1.**

MAKE ALL MIXED NUMBERS INTO IMPROPER FRACTIONS!

Steps to solve fractions with like denominators: FRACTIONS

1) Add or subtract the numerators of the fractions
2) Keep the denominator the same!
3) Simplify (simplest form) the answer (includes changing improper fractions into mixed numbers).

Ex: $\frac{2}{5} + \frac{1}{5} = \frac{2+1}{5} = \frac{3}{5}$

Ex: $\frac{3}{5} - \frac{1}{5} = \frac{3-1}{5} = \frac{2}{5}$

Ex: $2\frac{3}{5} + 1\frac{1}{5} = 3\frac{4}{5}$

Steps to solve *mixed numbers* with like denominators: MIXED NUMBERS

1) Change all mixed numbers into improper fractions
2) Add or subtract the numerators of the fractions
3) Simplify the answer (includes changing improper fractions into mixed numbers)

$4\frac{1}{3} + 2\frac{1}{3} = \frac{13}{3} + \frac{7}{3} = \frac{20}{3} = 6\frac{2}{3}$

$5\frac{7}{8} - 3\frac{3}{8} = \frac{47}{8} - \frac{27}{8} = \frac{20}{8} = 2\frac{4}{8} = 2\frac{1}{2}$

Examples: | You have to have the SAME DENOMINATOR!

1) $\frac{7}{8} - \frac{5}{8}$

2) $\frac{4}{7} + \frac{6}{7}$

3) $\frac{5}{9} - \frac{2}{9}$

4) $\frac{4}{5} + \frac{1}{5}$

5) A recipe calls for $\frac{2}{3}$ cup of water, $\frac{1}{3}$ cup of oil, and $\frac{1}{3}$ cup of milk. How much liquid is used?

(OR) $whole\_number + whole\_number \dfrac{numerator + numerator}{keep\_the\_same\_denominator}$

Examples:

1) $5\dfrac{3}{4} - 1\dfrac{1}{4}$ 2) $4\dfrac{5}{12} + 6\dfrac{7}{12}$ 3) $6\dfrac{7}{10} + \dfrac{1}{10}$ 4) $7\dfrac{10}{11} - 6\dfrac{4}{11}$

5) A recipe calls for $3\dfrac{1}{4}$ cups of flour. Michelle has $1\dfrac{3}{4}$ cups of flour. How much more flour does Michelle need for the recipe?

Practice Skills *(highlight the sign)*

Directions: Add or subtract the fractions. Write you answer in simplest form. (NO IMPROPER!)

1. $\dfrac{9}{11} + \dfrac{7}{11} =$

2. $\dfrac{6}{5} + \dfrac{1}{5} =$

3. $\dfrac{8}{15} - \dfrac{5}{15} =$

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

5. $\dfrac{3}{3} + \dfrac{8}{3} =$

6. $\dfrac{4}{12} + \dfrac{10}{12} =$

7. $\dfrac{9}{2} + \dfrac{7}{2} =$

8. $\dfrac{11}{12} - \dfrac{5}{12} =$

9. $\dfrac{5}{6} - \dfrac{2}{6} =$

Directions: Add or subtract MIXED NUMBERS. Write your answer in simplest form.

10. $6\dfrac{1}{4} + 4\dfrac{2}{4} =$

11. $1\dfrac{6}{7} + 1\dfrac{1}{7} =$

12. $7\dfrac{6}{9} - 5\dfrac{3}{9} =$

13. $3\dfrac{1}{3} - 2\dfrac{2}{3} =$

14. $6\dfrac{7}{10} + 7\dfrac{1}{10} =$

15. $3\dfrac{7}{8} + 5\dfrac{5}{8} =$

NOTES: Adding and Subtracting Fractions with UNLIKE Denominators

Steps to solve fractions with UNLIKE denominators:

1) CHANGE ANY MIXED NUMBERS INTO IMPROPER FRACTIONS
2) Find the LCD (least common denominator) of the fractions
3) Find out what you need to multiply the old denominator by to get the new denom
4) Multiply the top number (numerator) by the same number you multiply the bottom number (denominator) by (What you do to the top, you need to do to the bottom!)
5) Add/Subtract the numerators of the fractions
6) Keep the denominator the same
7) Simply if necessary (includes changing any improper fractions into mixed numbers)

$$\frac{2}{4} \quad \begin{array}{c} x3 \\ x3 \end{array} \quad = \frac{6}{12} \qquad = \frac{6}{12} \qquad \cdot = \frac{6}{12}$$

$$+ \frac{1}{3} \quad \begin{array}{c} x4 \\ x4 \end{array} \quad = \frac{4}{12} \quad \text{same} \quad = \frac{4}{12} \qquad \cdot = \frac{4}{12}$$

$$\text{LCD= 12} \qquad \frac{}{12} \qquad \frac{10}{12} \qquad \frac{10}{12} = \frac{5}{6}$$

You need to have the **SAME DENOMINATOR**!

$$5\frac{1}{4} + 3\frac{3}{5} = \frac{21}{4} + \frac{18}{5} = \frac{105}{20} + \frac{72}{20} = \frac{177}{20} = 8\frac{17}{20}$$

1) $\dfrac{1}{6} + \dfrac{1}{4} =$

2) $\dfrac{2}{5} - \dfrac{3}{10} =$

3) $4\dfrac{1}{2} - \dfrac{3}{8}$

4) $5\dfrac{2}{4} + \dfrac{10}{12}$

5) John finished filling a $\dfrac{7}{8}$ gallon watering can by pouring $\dfrac{5}{8}$ of a gallon of water into the can. How much water was already in the can?

6) Tom walked $2\dfrac{5}{6}$ miles on Wednesday. He walked another $1\dfrac{1}{3}$ mile Thursday. How many more miles did he walk on Wednesday than Thursday

REGROUPING/BORROWING METHODS:

A) $8\frac{1}{4} - 2\frac{2}{4} = 7\overset{5}{\cancel{8}}\frac{\cancel{1}}{4} - 2\frac{2}{4} = 5\frac{3}{4}$

(**ADD** the numerator and denominator to make your NEW numerator, keep the SAME denominator.)

B) Make **BOTH** mixed numbers into improper fractions and add/subtract normally. Reduce & simplify your answer. **MIXED → IMPROPER**

$6\frac{1}{2} - 2\frac{3}{4} = 6\frac{2}{4} - 2\frac{3}{4} = \frac{26}{4} - \frac{11}{4} = \frac{15}{4} = 3\frac{3}{4}$

Make your answer BACK into a MIXED NUMBER!

$6\frac{1}{5} - 4\frac{4}{5} =$

$8\frac{2}{3} - 3\frac{4}{5} =$

$6\frac{1}{2} - 3\frac{5}{10} =$

PRACTICE SKILLS   Add/Subtract with Unlike denominators   FIND THE SAME DENOMINATOR!!!

1) $\frac{2}{3} + \frac{5}{6} =$

2) $\frac{6}{5} + \frac{5}{10} =$

3) $\frac{8}{12} - \frac{1}{4} =$

4) $4\frac{2}{7} - 1\frac{9}{14} =$

5) $\frac{4}{12} - \frac{1}{3} =$

6) $\frac{1}{2} + \frac{5}{6} =$

7) $\frac{3}{8} + \frac{2}{4} =$

8) $9\frac{4}{5} - 2\frac{3}{10} =$

9) $\frac{7}{6} - \frac{5}{12} =$

10) $\frac{8}{10} - \frac{1}{2} =$

11) $\frac{4}{14} - \frac{1}{7} =$

12) $\frac{7}{8} - \frac{1}{4} =$

13) $2\frac{3}{12} - 1\frac{2}{6} =$

14) $4\frac{1}{8} + 3\frac{1}{2} =$

15) $7\frac{3}{4} - 2\frac{1}{8} =$