

LESSON 2.2a
 ADDING/SUBTRACTING FRACTIONS WITH UNLIKE
 DENOMINATORS **REVIEW**

When you add or subtract fractions, their denominators **MUST** be the **SAME**.
 Here are the steps to follow if the denominators are NOT the same.

- Find the **Least Common Multiple** of the denominators (which is called the **Least Common Denominator**).
- Change each fraction (using equivalent fractions) to make their denominators the same as the least common denominator
- Then add (or subtract) the fractions, as we wish!

Example: What is $\frac{1}{6} + \frac{7}{15}$?

The Denominators are 6 and 15:

STEP 1: List the multiples

multiples of 6: 6, 12, 18, 24, **30**, 36, ...

multiples 15: 15, **30**, 45, 60, ...

So the **Least Common Multiple** of 6 and 15 is **30**.

Now let's try to make the denominators the same.

Note: what we do to the bottom of the fraction,
 we must also do to the top

When we multiply 6×5 we get 30, and when we multiply 15×2 we also get 30:

STEP 2

Equivalent
 Fractions
 w/ common
 denominators

$$\frac{1}{6} = \frac{5}{30}$$

x5 (up arrow) and x5 (down arrow)

and

$$\frac{7}{15} = \frac{14}{30}$$

x2 (up arrow) and x2 (down arrow)

Now we can do the addition by adding the top numbers:

STEP 3

Add/Subtract
 ACROSS the TOP
 ONLY

$$\frac{5}{30} + \frac{14}{30} = \frac{19}{30}$$

Solve each problem. Write the answer as a mixed number fraction (if possible).

1) $\frac{2}{5} - \frac{1}{3} =$

1) 3, 6, 9, 12, **15**, 18
 5, 10, **15**

2) $\frac{2 \times 3}{5 \times 3} = \frac{6}{15}$ $\frac{1 \times 5}{3 \times 5} = \frac{5}{15}$

3) $\frac{6}{15} - \frac{5}{15} = \frac{1}{15}$

2) $\frac{4}{5} - \frac{1}{2} =$

1) 2, 4, 6, 8, **10**, 12
 5, **10**, 15

2) $\frac{4 \times 2}{5 \times 2} = \frac{8}{10}$ $\frac{1 \times 5}{2 \times 5} = \frac{5}{10}$

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

3) $\frac{10}{12} - \frac{2}{3} =$

1) 3, 6, 9, **12**, 15, 18
12, 24, 36

2) $\frac{2 \times 4}{3 \times 4} = \frac{8}{12}$ $\frac{10 \times 1}{12 \times 1} = \frac{10}{12}$

3) $\frac{10}{12} - \frac{8}{12} = \frac{2}{12} = \frac{1}{6}$

4) $\frac{1}{2} - \frac{1}{5} =$

1) 2, 4, 6, 8, **10**
 5, **10**

2) $\frac{1 \times 5}{2 \times 5} = \frac{5}{10}$ $\frac{1}{5} = \frac{2}{10}$

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

$$5) \frac{8}{10} \cdot \frac{2}{4} =$$

$$\frac{16}{20} \cdot \frac{10}{20} = \frac{6}{20} = \boxed{\frac{3}{10}}$$

$$6) \frac{4}{6} \cdot \frac{1}{12} =$$

$$\frac{8}{12} \cdot \frac{1}{12} = \boxed{\frac{7}{12}}$$

$$9) \frac{4}{5} + \frac{5}{12} =$$

$$\frac{48}{60} + \frac{25}{60} = \frac{73}{60}$$
$$\boxed{1 \frac{13}{60}}$$

$$10) \frac{5}{6} + \frac{6}{12} =$$

$$\frac{10}{12} + \frac{6}{12} = \frac{16}{12}$$
$$1 \frac{4}{12} = \boxed{1 \frac{1}{3}}$$

$$7) \frac{3}{6} + \frac{3}{8} =$$

$$\frac{12}{24} + \frac{9}{24} = \frac{21}{24}$$

$$\boxed{\frac{7}{8}}$$

$$8) \frac{10}{12} + \frac{1}{2} =$$

$$\frac{10}{12} + \frac{6}{12} = \frac{16}{12}$$

$$1 \frac{4}{12} = \boxed{1 \frac{1}{3}}$$

$$11) \frac{1}{3} + \frac{2}{6} =$$

$$\frac{2}{6} + \frac{2}{6} = \frac{4}{6} = \boxed{\frac{2}{3}}$$

$$12) \frac{7}{8} + \frac{8}{10} =$$

$$\frac{35}{40} + \frac{32}{40} = \frac{67}{40}$$

$$\boxed{1 \frac{27}{40}}$$