Title: Adding and Subtracting Fractions

Class: CA 111, Math 1, Math 4

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Instructions to tutor: Read instructions under "Activity" and follow all steps for each problem exactly as given.

Keywords/Tags: Fraction, add, subtract, LCD, common denominator, equivalent fractions

Objective: Find least common denominators and use them to add and subtract fractions.

Activity: You will learn how to find the least common denominator, use the least common denominator to write an equivalent fraction, then use these equivalent fractions to add or subtract. You will then practice these strategies.

Adding Fractions with the Same Denominator

Example 1. Evaluate $\dfrac{7}{8} + \dfrac{5}{8}$

These fractions have the same denominator. So, they are the same "type" and we only need to add the numerators.

$$\frac{7+5}{8} =$$

The last step is to be sure that your result is "reduced." Reduce the result.

Did you get $\dfrac{3}{2}$? Good job!

If you did not get this, check with the tutor to determine where you may have made an error.

Example 2: Evaluate $\dfrac{9}{14} + \dfrac{11}{14}$.

Did you get the result $\dfrac{10}{7}$? Fantastic!

If you did not get this, check with the tutor to determine where you may have made an error.

Adding Fractions with Different Denominators

Example 3: Add $\dfrac{2}{5} + \dfrac{1}{3}$

Steps to add/subtract fractions with different denominators:
1. **Find the Least Common Denominator (LCD) (remember, you do this by listing the multiples of each number and finding the smallest one they have in common.)**
2. **Change each fraction to an equivalent fraction with this LCD.**
3. **Add/subtract numerators and put the result over the LCD.**
4. **Be sure to simplify (reduce) the result.**

1. Find the Least Common Denominator (LCD)
So, what is the least common denominator for 5 and 3?

You should get 15.

2. Change each fraction to an equivalent fraction with this LCD.

$\dfrac{2}{5} = \dfrac{}{15}$ What do you have to multiply the denominator by to get 15? Remember to multiply the numerator and denominator times the same number.

$\dfrac{1}{3} = \dfrac{}{15}$ What do you have to multiply the denominator by to get 15? Remember to multiply the numerator and denominator times the same number.

You should now have $\dfrac{6}{15} + \dfrac{5}{15}$.

3. Add/subtract numerators and put the result over the LCD.

$\dfrac{6}{15} + \dfrac{5}{15} = \dfrac{}{15}$

4. Be sure to simplify (reduce) the result.

Your answer should be $\dfrac{11}{15}$. Did you get that? Excellent! Let's try another one.

If you did not get this, check with the tutor to determine where you may have made an error.

Example 4: Add $\dfrac{1}{15} + \dfrac{1}{10}$

1. Find the Least Common Denominator (LCD)

What is the LCD for 15 and 10? What is the smallest multiple they have in common?

2. Change each fraction to an equivalent fraction with this LCD.

3. Add/subtract numerators and put the result over the LCD.

4. Be sure to simplify (reduce) the result.

Did you get $\dfrac{1}{6}$? Great work!

If you did not get this, check with the tutor to determine where you may have made an error.

After you go over the previous problems with a tutor, try the following, then check with a tutor to make sure you did them correctly.

1. $\dfrac{11}{20} + \dfrac{13}{20}$

2. $\dfrac{5}{7} - \dfrac{2}{7}$

3. $\dfrac{11}{27} - \dfrac{8}{27}$

4. $\dfrac{3}{8} + \dfrac{1}{4}$

5. $\dfrac{7}{18} + \dfrac{7}{9}$

6. $\dfrac{29}{30} - \dfrac{7}{10}$

For tutor use: Please check the appropriate box.

☐ Student has completed worksheet but may need further assistance. Recommend a follow-up with instructor.
☐ Student has mastered topic.