

Subtraction with Fractions



National Center and State Collaborative

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Words and Math

- Before you begin instruction, you may need to review the different ways the operation of subtraction is referred to in word problems
- Some key phrases to look for include:
 - Subtracted from
 - Minus
 - Difference
 - Less than
 - Decreased by

Subtracting fractions with the same denominator: An example

- To subtract fractions with the same denominator, you subtract the numerators together while keeping the denominator

$$\frac{11}{13} - \frac{7}{13} = \frac{11 - 7}{13}$$
$$\frac{4}{13}$$

Helpful Hint:

You may want to manipulate equations so that the larger fraction comes first to avoid negative numbers. However, once students grasp the concept, begin including fractions and instruction with negative numbers.

Subtracting fractions with different denominators

- Step 1: find a common denominator
 - Method 1- multiply one denominator by the other
 - If you use this method, after you finishing subtracting, you may need to reduce the fraction to it's simplest form
 - For example, $\frac{18}{24} = \frac{6}{8}$
 - Method 2- find the least common denominator
 - If you use this method, students may benefit from having a chart already showing multiples of numbers 1-10 so they can select the correct multiple

Subtracting fractions with different denominators: An example

- Using method 1

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

Multiply 5 by 6 to
get new
denominator

$$\frac{24}{30} - \frac{5}{30} = \frac{19}{30}$$

In this case, the
difference cannot be
simplified further so
there is no need to
reduce the fraction

Subtracting fractions with different denominators: An example

- Using method 2

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

Step 1: Convert mixed numbers to improper fractions

$$\frac{13}{6} - \frac{20}{9}$$

Step 2: 18 is the least common denominator

$$\frac{39}{18} - \frac{40}{18} = -\frac{1}{18}$$

Note: this is a negative number (See slide 2)

Step 3: subtract numerators

Ideas for application

- Begin instruction using visual models
- Create a personally relevant word problem
 - Today we are having a pizza party. Our pizza has 10 slices. After the party 5 were left. If Julie eats one more slice, how much of the pizza is left?

Making connections

- Subtracting fractions address the following 4th and 5th grade Core Content Connectors
 - 4.NO.2h1 Add and subtract fractions with like denominators of (2,3,4 or 8)
 - 4.NO.2h2 Add and subtract fractions with like denominators (2,3,4 or 8) using representations
 - 4.NO.2h3 Solve word problems involving addition and subtraction of fractions with like denominators (2,3,4 or 8)
 - 5.NO.2b1 Add and subtract fractions with unlike denominators by replacing fractions with equivalent fractions (identical denominators)
 - 5.NO.2b2 Add or subtract fractions with unlike denominators