



MATH NEWS

Grade 5 | Module 3 | Topic C | Making Like Units Numerically

Welcome

This document is created to give parents and students a better understanding of the math concepts found in the Eureka Math (© 2013 Common Core, Inc.) that is also posted in the Engage New York material taught in the classroom. Grade 5 Module 3 of Eureka Math (Engage New York) covers Addition and Subtraction of Fractions. This newsletter will address making like units numerically.

Objectives

- Add fractions to and subtract fractions from **whole numbers** using **equivalence** and the **number line** as strategies.
- Add fractions making like units **numerically**.
- Add fractions with **sums** greater than 2.
- Subtract fractions making like units **numerically**.
- Subtract fractions greater than or equal to 1.

Words to Know

- equivalence
- improper fraction
- numerically
- sum
- difference
- mixed number
- division

Important Information

Things to Remember

Equivalence: being equal, having the same value

Numerically: using numbers

Sum: the answer to an addition problem

Difference: the answer to a subtraction problem

Number Line: A line using to show placement of whole numbers, fractions, and mixed numbers

Improper Fraction: a fraction with the numerator equal to or greater than the denominator

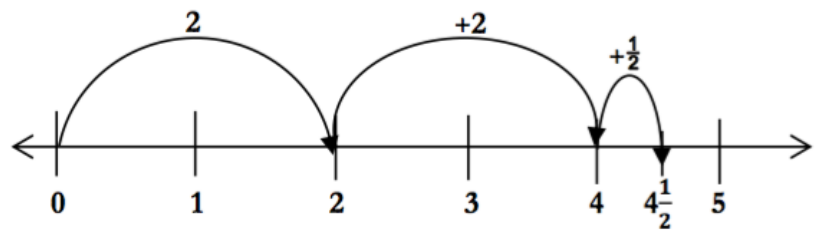
Mixed Number: a whole number plus a fraction smaller than 1, written without the + sign, e.g. $5\frac{3}{4} = 5 + \frac{3}{4}$

Focus Area Example Problems: Making Line Units

Problem 1: $2 + 2\frac{1}{2} = 4\frac{1}{2}$

Step 1: Add the whole numbers.

Step 2: Add the fraction.



Problem 2: $\frac{3}{4} - \frac{1}{5} = \left(\frac{3 \times 5}{4 \times 5}\right) + \left(\frac{1 \times 4}{5 \times 4}\right)$

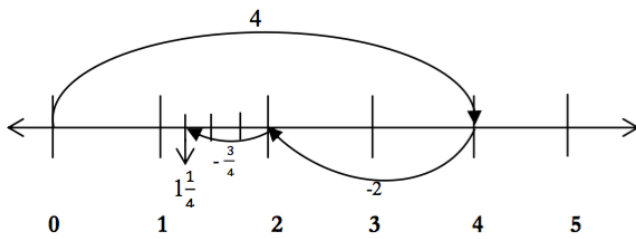
$$\frac{15}{20} + \frac{4}{20} = \frac{19}{20}$$

Step 1: Make like units numerically.

Step 2: Add fractions.

Problem 3: $4 - 2\frac{3}{4} = 1\frac{1}{4}$

- Step 1:** Subtract the whole numbers.
Step 2: Subtract the fraction.



Problem 4: $\longrightarrow 7\frac{5}{8} + 8\frac{2}{5}$

- Step 1:** Add the whole numbers. $= 7 + 8 + \frac{5}{8} + \frac{2}{5}$
Step 2: Make like units numerically. $= 15 + \left(\frac{5 \times 5}{8 \times 5}\right) + \left(\frac{2 \times 8}{5 \times 8}\right)$
Step 3: Add fractions. $= 15 + \frac{25}{40} + \frac{16}{40}$
Step 4: If sum is an improper fraction, rename fraction as a mixed number. $= 15 + \frac{41}{40}$
 $= 15 + 1 + \frac{1}{40}$
Step 5: Add whole number to fraction. $= 16\frac{1}{40}$
Step 6: Simplify sum if possible.

Problem 5: $5\frac{2}{3} - 2\frac{1}{2}$

- $= (5 - 2) + \frac{2}{3} - \frac{1}{2}$ **(Step 1: Subtract the whole numbers.)**
 $= 3 + \frac{2}{3} - \frac{1}{2}$
 $= (3 - \frac{1}{2}) + \frac{2}{3}$ **(Step 2: Subtract the second fraction from the whole number.)**
 $= 2\frac{1}{2} + \frac{2}{3}$ **(Step 3: Make like units numerically.)**
 $= 2 + \left(\frac{1 \times 3}{2 \times 3}\right) + \left(\frac{2 \times 2}{3 \times 2}\right)$
 $= 2 + \frac{3}{6} + \frac{4}{6}$ **(Step 4: Add the fractions.)**
 $= 2 + \frac{7}{6}$ **(Step 5: If sum of the fractions is an improper fraction, rename as a whole or mixed number.)**
 $= 2 + 1 + \frac{1}{6}$ **(Step 6: Add fraction to whole numbers.)**
 $= 3\frac{1}{6}$ **(Step 7: Simplify fraction if possible.)**

Problem 6: Mrs. Sanchez made $7\frac{4}{5}$ gallons of punch for a party. If there were $10\frac{1}{2}$ gallons in the mixture, how many gallons did she have left in the mixture?

$$\begin{aligned} & 10\frac{1}{2} - 7\frac{4}{5} \\ &= (10 - 7) + \frac{1}{2} - \frac{4}{5} \\ &= 3 + \frac{1}{2} - \frac{4}{5} \\ &= \left(3 - \frac{4}{5}\right) + \frac{1}{2} \\ &= 2\frac{1}{5} + \frac{1}{2} \\ &= 2 + \left(\frac{1 \times 2}{5 \times 2}\right) + \left(\frac{1 \times 5}{2 \times 5}\right) \\ &= 2 + \frac{2}{10} + \frac{5}{10} = 2\frac{7}{10} \end{aligned}$$

There are $2\frac{7}{10}$ gallons of Mrs. Sanchez's punch mixture left.

Problem 7: Bryant has a goal to drink at least $6\frac{1}{2}$ quarts of water during his day of training for the big marathon race. On his first break he drank $1\frac{3}{4}$ quarts, and during his second break he had another $2\frac{1}{5}$ quarts. How many quarts of water should Bryant drink on his last break of the day to reach his goal?

$$6\frac{1}{2} - \left(1\frac{3}{4} + 2\frac{1}{5}\right) = 6\frac{1}{2} - \left(3\frac{3}{4} + \frac{1}{5}\right) = 6\frac{1}{2} - \left(3 + \frac{3x5}{4x5} + \frac{1x4}{5x4}\right) = 6\frac{1}{2} - \left(3 + \frac{15}{20} + \frac{4}{20}\right)$$

$$6\frac{1}{2} - 3\frac{19}{20} = (6 - 3) + \frac{1}{2} - \frac{19}{20} = 3 + \frac{1}{2} - \frac{19}{20} = \left(3 - \frac{19}{20}\right) + \frac{1}{2}$$

$$2\frac{1}{20} + \frac{1}{2} = 2 + \left(\frac{1x2}{20x2}\right) + \left(\frac{1x20}{2x20}\right) = 2 + \frac{2}{40} + \frac{20}{40} = 2\frac{22}{40} = 2\frac{22+2}{40+2} = 2\frac{11}{20}$$

Or $2\frac{1}{20} + \frac{1}{2} = 2 + \left(\frac{1x1}{20x1}\right) + \left(\frac{1x10}{2x10}\right) = 2 + \frac{1}{20} + \frac{10}{20} = 2\frac{11}{20}$

Students do **not** have to use the least common denominator. They are just expected to create common denominators. In the end the answers will be the same.

Bryant should drink $2\frac{11}{20}$ quarts of water to reach his goal.

****The strategy above is a possible approach. The student could have first added $1\frac{3}{4} + 2\frac{1}{5}$. Then take the sum and subtract from $6\frac{1}{2}$.

District Mathematics Website

Be sure to visit our District 97 5th Grade Math Resources Website. It has a ton of resources that can further assist your 5th Grade Family! Some of the specific elements are detailed below.

Website: <http://op97mathgrade5.weebly.com/module-3.html>

Homework Helper

Would you like written homework help specific for each lesson in this Topic? Click below to access it!

Website: http://op97mathgrade5.weebly.com/uploads/2/2/9/1/22918938/homework_helper-grade_5_module_3.pdf

Video Help

Flipped learning is a great way to review topics that your student is learning in the classroom. The following are links to videos that give detailed explanations for each lesson in this topic.

Website: <https://www.tes.com/lessons/tL0TXIMT6EF88Q/video-help-module-3>

Module 3 Parent Tips

Eureka Math has created a guide to this Module specifically for parents. Click below to access it!

Website: <http://op97mathgrade5.weebly.com/uploads/2/2/9/1/22918938/>