Oak Park Elementary School District 97

MATH NEWS

Grade 5 | Module 3 | Topic D | Further Applications

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 using reasoning to estimate the value of expressions, strategize to solve problems involving more than two fractions, and assess the reasonableness of their solutions to word problems.

Objectives

- Use fraction benchmark numbers to assess reasonableness of addition and subtraction equations.
- Strategize to solve multi-term problems.
- Solve multi-step word problems; assess reasonableness of solutions using benchmark numbers
- Explore part to whole relationships

Important Information

Words to Know

- expression
- estimate/about
- benchmark fraction
- reasonableness
- sum
- difference
- solution

Things to Remember

Expression a group of numbers and symbols that shows a mathematical relationship. Example: $\frac{1}{3} + \frac{3}{4} + \frac{2}{3}$

≈: symbol for meaning 'about'

Benchmark Fraction: $\frac{1}{2}$ is a benchmark fraction when comparing fractions

Example: $\frac{1}{3}$ and $\frac{5}{8}$ $\frac{1}{3}$ is less than $\frac{1}{2}$ or $\frac{1}{3} < \frac{1}{2}$

$\frac{5}{8}$ is greater than $\frac{1}{2}$ or $\frac{5}{8} > \frac{1}{2}$

Therefore $\frac{1}{3}$ is less than $\frac{5}{8}$ or $\frac{1}{3} < \frac{5}{8}$.

Focus Area Example Problems: Use benchmark fraction to estimate the value of expressions:

Example 1: $\frac{1}{2} + \frac{3}{4} > 1$

We know that $\frac{1}{2} + \frac{1}{2} = 1$. Since $\frac{3}{4}$ is more than half and we are adding $\frac{1}{2}$ more, the sum will be greater than 1.

Example 2: $\frac{4}{10} + \frac{1}{3} < 1$ *and* $\frac{4}{10} + \frac{1}{3} < \frac{1}{2}$

Since $\frac{4}{10}$ and $\frac{1}{3}$ are less than half, the sum will be less than 1.

$$\frac{4}{10} + \frac{1}{3} < 1$$

Also $\frac{4}{10}$ needs $\frac{1}{10}$ to be a half. $\frac{1}{3}$ of a whole is greater than $\frac{1}{10}$ of the same whole, so adding $\frac{1}{3}$ more to $\frac{4}{10}$ will give us a sum greater than $\frac{1}{2}$. $\frac{4}{10} + \frac{1}{3} > \frac{1}{2}$

Example 3: $1\frac{2}{5} - \frac{2}{3} < 1$

We know $\frac{2}{5}$ is less than $\frac{1}{2}$ and $\frac{2}{3}$ is greater than $\frac{1}{2}$. We can't subtract $\frac{2}{3}$ from $\frac{2}{5}$ since $\frac{2}{3}$ is larger so we'll need to subtract $\frac{2}{3}$ from the one whole. $1 - \frac{2}{3} = \frac{3}{3} - \frac{2}{3} = \frac{1}{3}$

Since $\frac{1}{3}$ and $\frac{2}{5}$ are both less than half, we know when we combine the two fractions the answer will be less than 1.

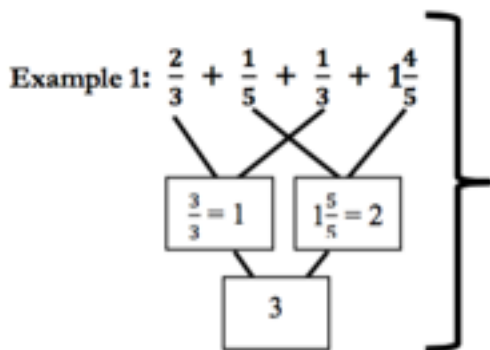**Problem:** *Use >, < or = to make the following statement true.*

$$4\frac{9}{10} - 1\frac{1}{8} \underline{\hspace{2cm}} 2\frac{1}{2} + \frac{2}{7}$$

$\downarrow \quad \downarrow \qquad\qquad \downarrow \qquad\quad \downarrow$

$\approx 5 \quad \approx 1 \qquad\qquad = 2\frac{1}{2} \quad \frac{2}{7} < \frac{1}{2}$
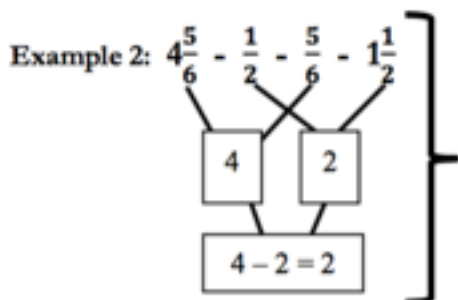
$4\frac{9}{10} - 1\frac{1}{8} \approx 4 \qquad 2\frac{1}{2} + \frac{2}{7} \approx 2\frac{1}{2}$

$$4\frac{9}{10} - 1\frac{1}{8} \; > \; 2\frac{1}{2} + \frac{2}{7}$$

Strategize to solve an addition or subtraction problem involving 2 fractions and/or mixed numbers.

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

$\frac{3}{3} = 1 \qquad 1\frac{5}{5} = 2$

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This problem is adding thirds and fifths. The most efficient approach would be to first add the like units together. Then combine the sums.

Example 2: $4\frac{5}{6} - \frac{1}{2} - \frac{5}{6} - 1\frac{1}{2}$

$4 \qquad 2$

$4 - 2 = 2$

In this problem we are subtracting $\frac{1}{2}$, $\frac{5}{6}$ and $1\frac{1}{2}$ from $4\frac{5}{6}$. We begin by subtracting $\frac{5}{6}$ from $4\frac{5}{6}$. Now you **don't** subtract $\frac{1}{2}$ from $1\frac{1}{2}$. *Remember we are subtracting both $\frac{1}{2}$ and $1\frac{1}{2}$ from what is left.* So we add $\frac{1}{2}$ and $1\frac{1}{2}$. The sum of 2 is subtracted from the 4.

Application Problem:

During lunch, Chris drinks $2\frac{3}{4}$ cups of milk. Allie drinks $\frac{3}{8}$ cup of milk. Carmen drinks $\frac{1}{4}$ cup of milk. How much milk do the 3 students drink?

$$2\frac{3}{4} + \frac{3}{8} + \frac{1}{4}$$

$2\frac{4}{4} = 3$

$$3 + \frac{3}{8} = 3\frac{3}{8}$$

Chris, Allie, and Carmen drank $3\frac{3}{8}$ cups of milk.

Assess Reasonableness of Solution:

John used $1\frac{3}{4}$ kg of salt to melt the ice on his sidewalk. He then used another $3\frac{4}{5}$ kg on the driveway. If he originally bought 10 kg of salt, how much does he have left? (This is an example of a multi-step problem.)

Possible Approach:

Step 1

$1\frac{3}{4}$ kg $+ 3\frac{4}{5}$ kg

$= 1\frac{15}{20} + 3\frac{16}{20}$

$= 4\frac{31}{20}$

$= 4 + \frac{20}{20} + \frac{11}{20}$

$= 5\frac{11}{20}$ kg of salt used

Step 2

10 kg $- 5\frac{11}{20}$ kg

$= 5 - \frac{11}{20}$

$= 4\frac{9}{20}$

John had $4\frac{9}{20}$ kg of salt left.

Assess reasonableness of answer:

$1\frac{3}{4} + 3\frac{4}{5}$ $10 - 6 = 4$

$\approx 2 + 4$

$= 6$

$4\frac{9}{20}$ falls between 4 and 5. Since $4\frac{9}{20}$ is less than half, $4\frac{9}{20}$ is closer to 4 than 5 which we can say the solution is reasonable.

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/