

# MATH NEWS

Grade 5, Module 3, Topic C

## 5<sup>th</sup> Grade Math

Module 3: Addition and Subtraction of Fractions

### Math Parent Letter

This document is created to give parents and students an understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. Grade 5 Module 3 of Eureka Math (Engage New York) covers Addition and Subtraction of Fractions. This newsletter will discuss Module 3, Topic C.

### Topic C: Making Like Units Numerically

#### Words to know:

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

#### 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 used to show placement of whole numbers, fractions, and mixed numbers
- **Mixed Number** – a whole number plus a fraction smaller than 1, written without the + sign, e.g. 5- means 5 + -
- **Improper Fraction** – a fraction with the numerator equal to or greater than the denominator

### OBJECTIVES OF TOPIC C

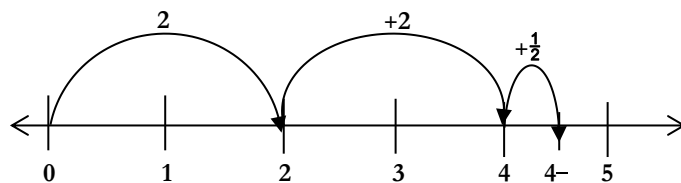
- Add fractions to and subtract fractions from **whole numbers** using **equivalence** and the **number line** as strategies.
- Add fractions making like units **numerically**.
- Add fractions with **sums** greater than 2.
- Subtract fractions making like units **numerically**.
- Subtract fractions greater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

### Focus Area– Topic C: Making Like Units

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

Step 1: Add the whole numbers.

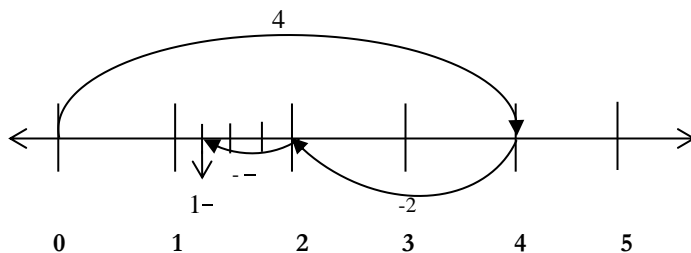
Step 2: Add the fraction.



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

Step 1: Subtract the whole numbers.

Step 2: Subtract the fraction.



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

Step 1: Make like units numerically.

Step 2: Add fractions.

Problem 4:  $\frac{1}{5} = \frac{1}{5} + \frac{1}{5}$

Step 1: Add the whole numbers. = - -

Step 2: Make like units numerically. =  $\left(\frac{-}{-}\right) + \left(\frac{-}{-}\right)$

Step 3: Add fractions. = - + -

Step 4: If sum is an improper fraction, rename fraction as a mixed number. = -  
= 15 + 1 + -

Step 5: Add whole number to fraction. = 16 -

Step 6: Simplify sum if possible.

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

$$= (5 - 2) + \frac{2}{3} - \frac{1}{2} \quad \text{(Step 1: Subtract the whole numbers.)}$$

$$= 3 + \frac{2}{3} - \frac{1}{2}$$

$$= (3 - \frac{1}{2}) + \frac{2}{3} \quad \text{(Step 2: Subtract the second fraction from the whole number.)}$$

$$= 2\frac{1}{2} + \frac{2}{3} \quad \text{(Step 3: Make like units numerically.)}$$

$$= 2 + \left(\frac{1x3}{2x3}\right) + \left(\frac{2x2}{3x2}\right)$$

$$= 2 + \frac{3}{6} + \frac{4}{6} \quad \text{(Step 4: Add the fractions.)}$$

$$= 2 + \frac{7}{6} \quad \text{(Step 5: If sum of the fractions is an improper fraction, rename as a whole or mixed number.)}$$

$$= 2 + 1 + \frac{1}{6} \quad \text{(Step 6: Add fraction to whole numbers.)}$$

$$= 3\frac{1}{6} \quad \text{(Step 7: Simplify fraction if possible.)}$$

**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?

$$10\frac{1}{2} - 7\frac{4}{5}$$

$$= (10 - 7) + \frac{1}{2} - \frac{4}{5}$$

$$= 3 + \frac{1}{2} - \frac{4}{5}$$

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

$$= 2\frac{1}{5} + \frac{1}{2}$$

$$= 2 + \left(\frac{1x2}{5x2}\right) + \left(\frac{1x5}{2x5}\right)$$

$$= 2 + \frac{2}{10} + \frac{5}{10} = 2\frac{7}{10}$$

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?

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

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

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

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  $6\frac{1}{2}$ .