



MATH NEWS



Grade 5, Module 4, Topic D

5th Grade Math

Module 4: Multiplication and Division of Fractions and Decimal 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 4 of Eureka Math (Engage New York) covers Multiplication and Division of Fractions and Decimal Fractions. This newsletter will discuss Module 4, Topic D. In this topic students will write and evaluate expressions with parentheses, interpret numerical expressions, and solve and create fraction word problems.

Topic D: Fraction Expressions and Word Problems

Words to know:

- evaluate
- expression
- numerical expression
- tape diagram

Things to Remember!

- **Expression** – a group of numbers and symbols that shows a mathematical relationship
Example: $\frac{1}{3} + \frac{3}{4} + \frac{2}{3}$
- **Numerical Expression** - A mathematical phrase involving only numbers and one or more operational symbol
Example: $\frac{2}{5} \times (6 + 14)$
- **Evaluate** – to find the value of an expression
- **Tape Diagram** – Drawing that looks like a segment of tape, used to illustrate number relationships.

OBJECTIVES OF TOPIC D

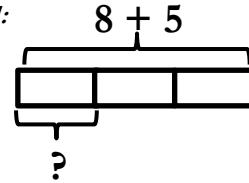
- Compare and evaluate expressions with parentheses.
- Solve and create fraction word problems involving addition, subtraction, and multiplication.

Focus Area– Topic D

Module 4: Multiplication and Division of Fractions and Decimal Fractions

Write an expression to match a tape diagram. Then evaluate.

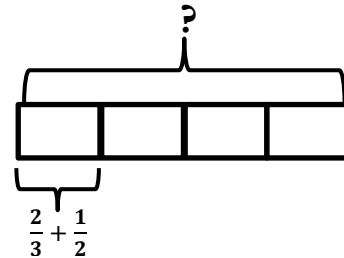
Example 1:



Expression: $\frac{1}{3} \times (8 + 5)$ } The tape diagram is showing $\frac{1}{3}$ the sum of 8 and 5.

Evaluate: $\frac{1}{3} \times (8 + 5)$
 $= \frac{1}{3} \times 13$
 $= \frac{1 \times 13}{3}$
 $= \frac{13}{3} = 4\frac{1}{3}$


Example 2:



Expression: $(\frac{2}{3} + \frac{1}{2}) \times 4$ The tape diagram is showing 4 copies of $\frac{2}{3} + \frac{1}{2}$.

Evaluate: $(\frac{2}{3} + \frac{1}{2}) \times 4$
 $= (\frac{4}{6} + \frac{3}{6}) \times 4$
 $= \frac{7}{6} \times 4$
 $= \frac{7 \times 4}{6}$
 $= \frac{28}{6}$
 $= 4\frac{4}{6}$ or $4\frac{2}{3}$

Remember when adding fractions with unlike denominators, you find equivalent fractions to create like denominators.
 $\frac{2}{3} \times \frac{2}{2} = \frac{4}{6}$



Write and evaluate an expression from word form.

Example 1: 4 times 2 divided by 3

Expression: $(4 \times 2) \div 3$

Evaluate: $8 \div 3$
 $= \frac{8}{3} = 2\frac{2}{3}$

Example 2: 3 times as much as the sum of $\frac{1}{4}$ and $\frac{2}{3}$

Expression: $(\frac{1}{4} + \frac{2}{3}) \times 3$

Evaluate: $(\frac{3}{12} + \frac{8}{12}) \times 3$
 $= \frac{11}{12} \times 3$
 $= \frac{11 \times 3}{12}$
 $= \frac{33}{12} = 2\frac{9}{12}$ or $2\frac{3}{4}$

Problem: Compare expressions in word form and numerical form.

Subtract 2 from $\frac{1}{2}$ of 9 $(11 \div 2) - 2$
 $(\frac{1}{2} \times 9) - 2 = (11 \div 2) - 2$
 $= 4\frac{1}{2} - 2 = 5\frac{1}{2} - 2$
 $= 2\frac{1}{2} = 3\frac{1}{2}$

Subtract 2 from $\frac{1}{2}$ of 9 $(11 \div 2) - 2$

Problem Solving: Crissy and Crystal share a 16 ounce box of cereal. By the end of the week, Crissy has eaten $\frac{3}{8}$ of the box and Crystal has eaten $\frac{1}{4}$ of the box of cereal. **What fraction of the box is left?**

Strategy #1

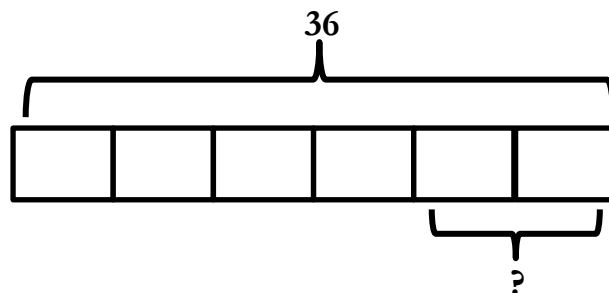
$\frac{3}{8} + \frac{1}{4}$ 1 box - $\frac{5}{8}$
 $= \frac{3}{8} + \frac{2}{8}$ $= 1 - \frac{5}{8}$
 $= \frac{5}{8}$ of the box eaten $= \frac{3}{8}$ of the box left

Strategy #2

Crissy: $\frac{3}{8} \times 16$ oz Crystal: $\frac{1}{4} \times 16$ oz 6 oz + 4 oz = 10 oz
 $= \frac{3 \times 16}{8} = \frac{48}{8} = 6$ oz $= \frac{1 \times 16}{4} = \frac{16}{4} = 4$ oz 16 oz - 10 oz = 6 oz left
 $= \frac{6}{1} = 6$ oz $= \frac{4}{1} = 4$ oz $\frac{6 \text{ oz}}{16 \text{ oz}} = \frac{3}{8}$ of the box left

$\frac{3}{8}$ of the box of cereal is left.

Create a story problem about a fish tank for the tape diagram below. Your story must include a fraction.



Possible story problem:

There are 36 fish in a fish tank. $\frac{4}{6}$ of the fish are goldfish and the rest are mollies. How many mollies are in the fish tank?

Solution: $\frac{2}{6} \times 36$
 $= \frac{2 \times 36}{6}$
 $= \frac{72}{6} = 12$

There are 12 mollies in the fish tank.