



MATH NEWS

Grade 5 | Module 4 | Topic D | Mult. and Div. of Fractions & Decimal Fractions

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 4 of Eureka Math (Engage New York) covers Multiplication and Division of Fractions and Decimal Fractions. This will address writing and evaluating expressions with parentheses, interpret numerical expressions, and solve and create fraction word problems.

Objectives

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

Words to Know

- Evaluate
- Expression
- Numerical Expression
- Tape Diagram

Online Resource

<http://op97mathgrade5.weebly.com/module-4.html>

Important Information

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: $\frac{2}{5} \times (6 + 14)$

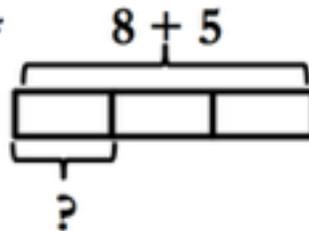
Evaluate: To find the value of an expression

Tape Diagram: Drawing that looks like a segment of tape, used to illustrate number relationships.

Examples

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

Example 1:

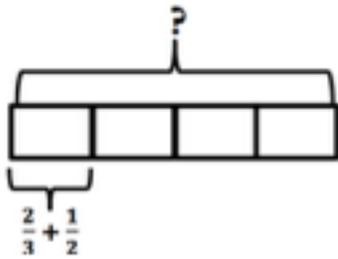


Expression: $\frac{1}{3} \times (8 + 5)$ } The tape diagram is showing $\frac{1}{3}$ the sum of 8 and 5.

$$\begin{aligned}
 \text{Evaluate: } & \frac{1}{3} \times (8 + 5) \\
 & = \frac{1}{3} \times 13 \\
 & = \frac{1 \times 13}{3} \\
 & = \frac{13}{3} = 4\frac{1}{3}
 \end{aligned}$$

Examples continued on 2nd page.

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.
 $\frac{2}{3} \times \frac{2}{2} = \frac{4}{6}$

Application Problems

Directions: 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 $2\frac{3}{4}$

Directions: 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 $(11 \div 2) - 2$

Directions: 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
 $= \frac{3 \times 16}{8}$ $= \frac{1 \times 16}{4}$
 $= \frac{6}{1} = 6$ oz $= \frac{4}{1} = 4$ oz

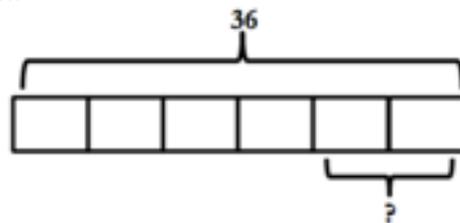
6 oz + 4 oz = 10 oz

16 oz - 10 oz = 6 oz left

$\frac{6 \text{ oz}}{16 \text{ oz}} = \frac{3}{8}$ of the box left

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

Directions: Create a story problem about a fish tank 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: $\frac{2}{6} \times 36$
 $= \frac{2 \times 36}{6}$
 $= \frac{12}{1} = 12$

There are 12 mollies in the fish tank.

Equation

$$\frac{1}{3} \text{ lb} = \frac{1}{3} \times 1 \text{ lb}$$

We know that 16 ounces is the same thing as 1 pound (lb), so we will rename the pound in our expression as ounces (oz).

$$\longrightarrow = \frac{1}{3} \times 16 \text{ ounces}$$

$$= \frac{1 \times 16}{3}$$

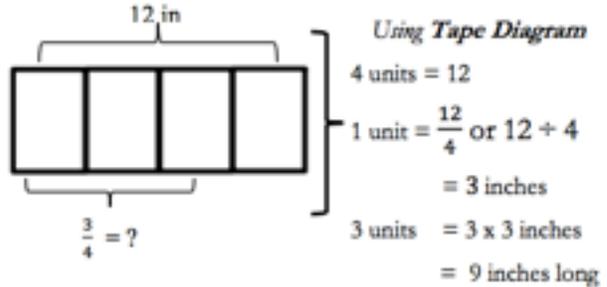
$$= \frac{16}{3}$$

ANSWER $\longrightarrow = 5\frac{1}{3} \text{ ounces}$

Amanda measured the length of one of her books. It was $\frac{3}{4}$ of a foot. How long is her book in inches?

ft – foot in – inches

$$\frac{3}{4} \text{ of 1 foot} = \text{_____ inches}$$



Equation:

$$\frac{3}{4} \text{ ft} = \frac{3}{4} \times 1 \text{ ft}$$

We know that 16 ounces is the same thing as 1 pound (lb), so we will rename the pound in our expression as ounces (oz).

$$\longrightarrow \frac{3}{4} \times 1 \text{ ft} = \frac{3}{4} \times 12 \text{ inches}$$

$$= \frac{3 \times 12}{4} \quad \text{OR} \quad = \frac{3 \times \cancel{12}^3}{4} = \frac{9}{1} = 9$$

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-4.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_4.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/ahONa5NczU7C7Q/video-help-module-4>

Module 4 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/eureka_math_module_4_parent_tip_sheet.pdf