MATH 4: CLASSWORK 11
December 8, 2019

Fraction multiplication: $\frac{3}{4} \cdot \frac{2}{3} =$.

1. Multiply enumerators and denominators:

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

2. Simplify by using number prime factorization:

$$\frac{3}{4} \cdot \frac{2}{3} = \frac{3 \cdot 2}{4 \cdot 3} = \frac{3 \cdot 2}{2 \cdot 2 \cdot 3} = \frac{1}{2}$$

Fraction division: $\frac{1}{2} \div \frac{2}{3} =$

1. Find a reciprocal (invers element) of the divisor. Reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$.
2. Turn division into multiplication and simplify by using prime factorization:

$$\frac{1}{2} \div \frac{2}{3} = \frac{1}{2} \cdot \frac{3}{2} = \frac{1 \cdot 3}{2 \cdot 2} = \frac{3}{4}$$

3. **Does it make sense?**

Lets look into the example: $\frac{1}{2} \div \frac{1}{6} =$.

It is asking How many times $\frac{1}{6}$ is in $\frac{1}{2}$?

$\frac{1}{2} \div \frac{1}{6} = \frac{1}{2} \cdot \frac{6}{1} = \frac{1 \cdot 6}{2 \cdot 1} = 3$ times!

Another example: $\frac{1}{4} \div \frac{1}{2} =$

It is asking How many times $\frac{1}{2}$ is in $\frac{1}{4}$

$\frac{1}{4} \div \frac{1}{2} = \frac{1}{4} \cdot \frac{2}{1} = \frac{1 \cdot 2}{4 \cdot 1} = \frac{1}{2}$ times!

If you still have questions, visit this website
http://www.mathsisfun.com/fractions_division.html

The distance between A and B is 5 meters. A toy train goes as fast as 20 cm per second. How long the train will travel from A to B?

MATH 4: HOMEWORK 11
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1. Calculate, simplify! Use prime factorization, see classwork examples.

(a) $\frac{3}{4} \cdot \frac{2}{3} =$ (b) $\frac{5}{9} \cdot \frac{3}{15} =$ (c) $\frac{9}{20} \cdot \frac{10}{27} =$

(d) $\frac{27}{16} \cdot \frac{4}{45} =$ (e) $\frac{9}{2} \div \frac{21}{2} =$ (f) $\frac{9}{10} \div \frac{10}{3} =$

(g) $\frac{3}{4} \div \frac{2}{3} =$ (g) $6 \div \frac{2}{3} =$ (g) $7 \div \frac{14}{3} =$

2. TGV is France's high-speed rail service. TGV trains can comfortably go as fast as 300km/h, while Amtrak (US train service) top speed is 200 km/h. How long it will take for TGV and Amtrak to go from New York to Washington DC, if the distance between New York and Washington D.C. is 400 km? How much time we would save if TGV operated between New York and Washington DC?
3. In a box of candy, the number of caramels is one-third the number of other candy in the box. What fractions are the caramels in the entire box?
4. A peasant woman came to a market to sell some eggs. A first buyer took half her eggs plus 1/2 an egg. The same happened with the remaining eggs: a second buyer took half the remaining eggs plus 1/2 an egg. A third only bought what was left over: 1 egg. How many eggs were there initially? *[Hint1: a buyer never takes a broken egg home. Hint2: work backwards: first, try to find how many eggs were there when the second buyer came, and after that try to find the initial number of eggs.]*
5. Solve equations: *(First - open parenthesis, second - collect all Xs at the left, and numbers at the right, find X)*

(a) $3(3x - 1) = 2(2x + 11)$

(b) $5(x - 2) = 3x + 20$

(c) $2(x - 7) = x + 11$

(d) $\frac{3}{4}x = 2$

(e) $\frac{1}{2}x = \frac{1}{4}x + 2$