

February 8, 2017



Math 8



Test Thursday Feb 6

A jug holds $2\frac{2}{5}$ liters of water. A bucket holds 15 liters of water. How many small jugs can be filled from the water in the bucket?

$$\begin{aligned}
 & 15 \div 2\frac{2}{5} \\
 & = 15 \div \frac{12}{5} \\
 & = \frac{15 \div 3}{1} \times \frac{5}{12 \div 3} \\
 & = \frac{5}{1} \times \frac{5}{4} \\
 & = \frac{25}{4} \\
 & = 6\frac{1}{4}
 \end{aligned}$$

Change Mixed to improper

Rule for division flip and x

You can fill $6\frac{1}{4}$ Jugs.

2) Examples:

$$(a) \frac{20}{21} \div \frac{3}{7} \times 1 + (\frac{1}{2} + \frac{1}{4})$$

$$= \frac{20}{21} \div \frac{3}{7} \times \frac{1}{5} + (\frac{2}{4} + \frac{1}{4})$$

add (Need C.D.)

$$= \frac{20}{21} \div \frac{3}{7} \times \frac{1}{5} + \frac{3}{4}$$

$$= \frac{20}{21 \div 7} \times \frac{7 \div 7}{3} \times \frac{1}{5} + \frac{3}{4}$$

$$= \frac{20}{3} \times \frac{1}{3} \times \frac{1}{5} + \frac{3}{4}$$

$$= \frac{20 \div 5}{9} \times \frac{1}{5 \div 5} + \frac{3}{4}$$

$$= \frac{4}{9} \times \frac{1}{1} + \frac{3}{4}$$

$$= \frac{4 \times 4}{9 \times 4} + \frac{3 \times 9}{4 \times 9}$$

need C.D.

$$= \frac{16}{36} + \frac{27}{36}$$

$$= \frac{43}{36}$$

$$= 1\frac{7}{36}$$

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$$4 \text{ a) } \frac{1}{3} \times \left(\frac{7}{8} - \frac{3}{4} \right)$$

$$\frac{1}{3} \times \left(\frac{7}{8} - \frac{6}{8} \right)$$

$$\frac{1}{3} \times \frac{1}{8} = \frac{1}{24}$$

$$b) \frac{7}{8} \div \left(\frac{1}{3} \times \frac{1}{8} \right)$$

$$\frac{7}{8} \div \frac{1}{24}$$

$$\frac{7}{8} \times \frac{24}{1} = 21$$

$$c) \frac{5}{9} \times \left(\frac{3}{5} \div \frac{1}{6} \right)$$

$$\frac{5}{9} \times \left(\frac{3}{5} \times \frac{6}{1} \right)$$

$$\frac{5}{9} \times \frac{30}{5} = \frac{270}{9}$$

$$= \frac{54}{1}$$

$$d) \left(\frac{5}{3} + \frac{7}{12} \right) \times \frac{4}{9}$$

$$\left(\frac{20}{12} + \frac{7}{12} \right) \times \frac{4}{9}$$

$$\frac{27}{12} \times \frac{4}{9} = \frac{108}{108}$$

$$\left(\text{or } \frac{108}{108} = 1 \right)$$

$$5. \frac{5}{10} + \frac{3}{6} \times \frac{1}{2}$$

$$\frac{5}{10} + \frac{3}{6}$$

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

$$= 1$$

Raj was correct.

$$6) \frac{1}{2} \times \frac{3}{5} + \frac{1}{4}$$

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

$$\frac{6}{20} + \frac{5}{20} = \frac{11}{20}$$

$$b) \frac{2}{3} + \frac{5}{6} \div \frac{1}{2}$$

$$\frac{2}{3} + \frac{5}{6} \times \frac{2}{1}$$

$$\frac{4}{3} + \frac{10}{6}$$

$$\frac{4}{6} + \frac{10}{6} = \frac{14}{6} \text{ or } \frac{7}{3}$$

$$c) \frac{4}{5} \div \frac{7}{10} + \frac{1}{3}$$

$$\frac{4}{5} \times \frac{10}{7} + \frac{1}{3}$$

$$\frac{40}{35} + \frac{1}{3}$$

$$\frac{24}{21} + \frac{7}{21} = \frac{31}{21}$$

$$d) \frac{1}{4} \times \left(\frac{11}{12} - \frac{5}{6} \right)$$

$$\frac{1}{4} \times \left(\frac{11}{12} - \frac{10}{12} \right)$$

$$\frac{1}{4} \times \frac{1}{12} = \frac{1}{48}$$

$$e) \frac{1}{2} \times \left(\frac{4}{5} \div \frac{3}{10} \right)$$

$$\frac{1}{2} \times \left(\frac{4}{5} \times \frac{10}{3} \right)$$

$$\frac{1}{2} \times \frac{40}{15} = \frac{40}{30}$$

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

$$f) \left(\frac{3}{5} + \frac{7}{15} \right) \times \frac{5}{6}$$

$$\left(\frac{9}{15} + \frac{7}{15} \right) \times \frac{5}{6}$$

$$\frac{16}{15} \times \frac{5}{6} = \frac{80}{90}$$

$$= \frac{8}{9}$$

Evaluate

$$\begin{aligned} & \frac{1}{2} - \frac{3}{5} \times \frac{1}{6} \\ & = \frac{1}{2} - \frac{3}{30} \div 3 \\ & = \frac{1}{2} - \frac{1}{10} \\ & \quad \text{Need C.D} \\ & = \frac{5}{10} - \frac{1}{10} \\ & = \frac{4}{10} \div 2 \\ & = \frac{2}{5} \end{aligned}$$

Use a diagram to find

$$2 \div \frac{3}{5}$$



$$\begin{aligned} & 2 \times \frac{5}{3} \\ & \frac{10}{3} \\ & = 3\frac{1}{3} \end{aligned}$$

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$$7a) \frac{1}{8} \times \frac{3}{4} \times \frac{7}{5} \div \frac{7}{10}$$

$$\frac{3}{32} \times \frac{7}{5} \div \frac{7}{10}$$

$$\frac{\cancel{21}}{\cancel{160}} \times \frac{\cancel{10}}{7} = \frac{21}{112}$$

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

Feb 6 Homework solutions

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$$\frac{210}{1120}$$

$$b) \frac{14}{15} \div \frac{2}{3} \times \frac{5}{8} + \frac{3}{4}$$

$$\frac{14}{15} \times \frac{3}{2} \times \frac{5}{8} + \frac{3}{4}$$

$$\frac{42}{30} \times \frac{5}{8} + \frac{3}{4}$$

$$\frac{\cancel{210}}{\cancel{240}} + \frac{3}{4}$$

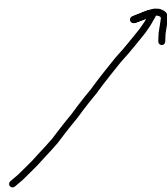
$$\frac{21}{24} + \frac{18}{24} = \frac{39}{24}$$

$$= \frac{13}{8}$$

$$\begin{aligned}
 c) \quad & \frac{2}{3} - \frac{1}{4} + \frac{1}{2} \div \frac{2}{5} \\
 & \frac{2}{3} - \frac{1}{4} + \frac{1}{2} \times \frac{5}{2} \\
 & \frac{2}{3} - \frac{1}{4} + \frac{5}{4} \\
 & \frac{8}{12} - \frac{3}{12} + \frac{15}{12} \\
 & \frac{20}{12} \text{ or } \frac{5}{3}
 \end{aligned}$$

Feb 6 Homework solutions
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$$\begin{aligned}
 d) \quad & \frac{5}{6} - \frac{1}{5} \times \frac{5}{8} + \frac{2}{3} \\
 & \frac{5}{6} - \frac{5}{40} + \frac{2}{3} \\
 & \frac{100}{120} - \frac{15}{120} + \frac{80}{120} = \frac{165}{120} \\
 & = \frac{33}{24} = \frac{11}{8}
 \end{aligned}$$



$$\begin{aligned}
 & \frac{5}{6} - \frac{1}{8} + \frac{2}{3} \\
 & \frac{20}{24} - \frac{3}{24} + \frac{16}{24} \\
 & \left\{ \frac{20}{24} - \frac{3}{24} \right\} + \frac{16}{24} \\
 & \frac{17}{24} + \frac{16}{24} \\
 & \frac{33}{24} \\
 & = \frac{11}{8}
 \end{aligned}$$

8 a)

No they are not the same

Feb 6 Homework solutions

Pg 155 #7 to # 11

in $\frac{1}{2} \div \frac{1}{4} \times \frac{2}{3}$, you do the division first

- in $\frac{1}{2} \div (\frac{1}{4} \times \frac{2}{3})$, you do the multiplication in the brackets first.

$$9a) \frac{7}{10} - (\frac{1}{5} + \frac{1}{4}) \times \frac{2}{3}$$

$$\frac{7}{10} - (\frac{4}{20} + \frac{5}{20}) \times \frac{2}{3}$$

$$\frac{7}{10} - \frac{9}{20} \times \frac{2}{3}$$

$$\frac{7}{10} - \frac{18}{60}$$

$$\frac{42}{60} - \frac{18}{60}$$

$$\frac{24}{60} \text{ or } \frac{2}{5}$$

$$\frac{7}{10} - \frac{18}{60}$$

$$\frac{7}{10} - \frac{3}{10}$$

$$\frac{4}{10} \text{ or } \frac{2}{5}$$

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9 b) $(\frac{1}{4} + \frac{5}{6} - \frac{1}{3}) \times \frac{8}{5}$
 $(\frac{3}{12} + \frac{10}{12} - \frac{4}{12}) \times \frac{8}{5}$
 $\frac{9}{12} \times \frac{8}{5} = \frac{72}{60} \div 12$
 $= \frac{6}{5}$

Feb 6 Homework solutions

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c) $(\frac{6}{5} + \frac{4}{10}) \times (\frac{3}{8} - \frac{1}{16})$
 $(\frac{12}{10} + \frac{4}{10}) \times (\frac{3}{8} - \frac{2}{32})$

$\frac{16}{10} \times \frac{10}{32} = \frac{16}{32}$ or $\frac{1}{2}$

$\frac{16}{10} \times \frac{10}{32} = \frac{160}{320}$
 $= \frac{1}{2}$

10 a) $\frac{5}{20} + \frac{1}{4} \times \frac{4}{5} \div \frac{1}{10} - \frac{1}{2}$
 $\frac{5}{20} + \frac{4}{20} \times \frac{10}{10} - \frac{1}{2} - \frac{1}{2}$
 $\frac{5}{20} + \frac{40}{20} - \frac{1}{2} - \frac{1}{2}$
 $\frac{45}{20} - 1 - \frac{1}{2}$
 $\frac{45}{20} - \frac{40}{20} - \frac{10}{20}$
 $\frac{5}{20}$ or $\frac{1}{4}$

$\frac{5}{2} + \frac{40}{20} - \frac{1}{2}$
 $2\frac{1}{2} + 2 - \frac{1}{2}$
 4

$$b) \frac{4}{9} \times \left(\frac{2}{3} - \frac{1}{6} \right) - \frac{1}{8} \times \frac{4}{3}$$

$$\frac{4}{9} \times \left(\frac{4}{6} - \frac{1}{6} \right) - \frac{1}{8} \times \frac{4}{3}$$

$$\frac{4}{9} \times \frac{3}{6} - \frac{1}{8} \times \frac{4}{3}$$

$$\frac{12}{36} - \frac{4}{24}$$

$$\frac{2}{6} - \frac{1}{6} = \frac{1}{6}$$

Feb 6 Homework solutions

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$$11. 4 \times \left(\frac{3}{4} - \frac{1}{2} \right) + \frac{13}{6} \times \frac{1}{2}$$

$$4 \times \left(\frac{3}{4} - \frac{2}{4} \right) + \frac{13}{6} \times \frac{1}{2}$$

$$4 \times \frac{1}{4} + \frac{13}{6} \times \frac{1}{2}$$

$$1 + \frac{13}{12}$$

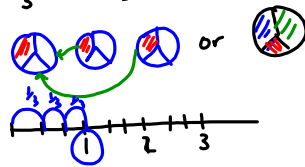
$$1 + 1\frac{1}{12} = 2\frac{1}{12}$$

Myra was correct

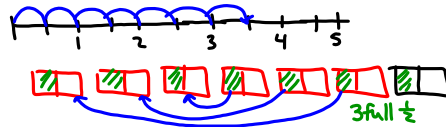
pg 159
 1) a) $\frac{2}{5} \times 6 = 2\frac{2}{5}$ b) $\frac{6}{7} \times 3 = 2\frac{4}{7}$

2a) $\frac{1}{3} \times 3 = \frac{3}{3} = 1$

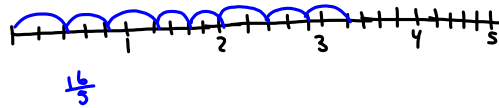
Feb 6 Homework solutions
 Pg 159 #1 to #4



2b) $7 \times \frac{1}{2} = 3\frac{1}{2}$



c) $8 \times \frac{2}{5} = 3\frac{1}{5}$

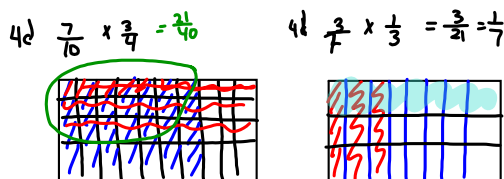
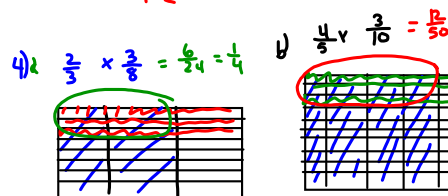


3a) $\frac{3}{5} \times \frac{30}{1} = \frac{90}{5} = 18$ 18 students are girls
 $\frac{3}{5} \times \frac{30}{1}$
 $\frac{18}{1} = 18$

3b) $6 \times \frac{2}{3} = \frac{12}{3} = 4$ full glasses

3c) $\frac{2}{3} \times 75$ 50 new cars
 $\frac{2}{3} \times \frac{75}{1}$
 $\frac{2 \times 25}{1 \times 1} = 50$

3d) $\frac{1}{2} \times \frac{18}{1}$
 $= \frac{18}{2}$
 $= \frac{18^3}{18^2}$
 $= \frac{3}{1}$
 $= 1\frac{1}{2}$ cakes needed



5) $\frac{3}{5} \times \frac{1}{4}$
 $\frac{3}{20}$

Class/Homework

Test ~~Monday~~ ^{Ex. 6 (Thursday)}

pg. 155 #9abc, 11

pg. 159 # 1a, 2b, 3.4a, 5, 7, 11a, b. ,
14ac, 1519ab, 20, 23ab, 25, 27, 29ac, 30

STUDY

$$\frac{3}{4} \times \left(\frac{1}{5}\right) = \frac{3}{20}$$



solutions posted tonight in
this file

Test Outline

7 Multiple Choice

7 points

8 Short Response

49 points

} ≤ 56

Review for Test

Be able to find equivalent fractions and reduce fractions

Be able to change from mixed number to an improper fraction and vice versa

Be able to add and subtract proper, improper fractions and mixed numbers

Be able to model multiplication of fractions using number lines and squares.

Be able to model division of fractions using number lines and squares.

Be able to multiply and divide fractions and mixed numbers using "rules"

Be able to solve word problems involving addition, subtraction, multiplication and division of fractions.

Be able to solve order of operations questions involving fractions.

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6. a) $\frac{1}{2} \times \frac{3}{10} = \frac{3}{20}$

closer to 0
(small fraction)

b) $\frac{3}{5} \times \frac{1}{8} = \frac{3}{40}$

small fraction,
close to 0

c) $\frac{7}{8} \times \frac{2}{5} = \frac{14}{40}$

less than $\frac{1}{2}$

d) $\frac{3}{11} \times \frac{44}{21} = \frac{4}{21}$

7. $\frac{2}{5}$ of $\frac{3}{4}$
 $\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$
or $\frac{3}{10}$

11. a) $\frac{2}{3} \times \frac{9}{10} \approx 2 \times 2$
 $\frac{2}{3} \times \frac{9}{10} = \frac{18}{30}$
 $= \frac{19}{6}$

b) $4\frac{1}{2} \times \frac{5}{8} \approx \frac{1}{2}$ of 4
 $\frac{9}{2} \times \frac{5}{8} = \frac{45}{16}$

c) $\frac{9}{5} \times \frac{14}{8} \approx 2 \times 2$
 $= \frac{116}{40}$
 $= \frac{58}{20} = \frac{29}{10}$

d) $\frac{3}{10} \times 6\frac{2}{3} \approx 1 \times \frac{7}{7}$
 $= \frac{13}{10} \times \frac{20}{3}$
 $= \frac{26}{3}$

$$12. \quad 1\frac{3}{4} \times 2\frac{1}{3}$$

$$\frac{7}{4} \times \frac{7}{3} = \frac{49}{12} \text{ or } 4\frac{1}{12} \text{ hours to mow the lawn}$$

$$14. \text{ a) } \frac{3}{1} \div \frac{4}{5}$$

$$\frac{3}{1} \times \frac{5}{4} = \frac{15}{4}$$

$$\text{b) } 4 \div \frac{5}{6}$$

$$\frac{4}{1} \times \frac{6}{5} = \frac{24}{5}$$

$$\text{c) } \frac{3}{10} \div 2$$

$$\frac{3}{10} \times \frac{1}{2} = \frac{3}{20}$$

$$\text{d) } 2\frac{5}{10} \div 3$$

$$\frac{2}{1} \times \frac{1}{3} = \frac{2}{3}$$

$$19. a) \frac{3}{4} \div \frac{3}{8}$$

$$\frac{3}{4} \times \frac{8}{3} = \frac{24}{12}$$

$$= 2$$

$$b) \frac{1}{4} \div \frac{7}{8}$$

$$\frac{1}{4} \times \frac{8}{7} = \frac{8}{28}$$

$$= \frac{2}{7}$$

$$c) \frac{5}{12} \div \frac{1}{3}$$

$$\frac{5}{12} \times \frac{3}{1} = \frac{15}{12}$$

$$= \frac{5}{4}$$

$$d) \frac{1}{2} \div \frac{3}{5}$$

$$\frac{1}{2} \times \frac{5}{3} = \frac{5}{6}$$

$$20. \frac{7}{8} \div \frac{1}{6}$$

$$\frac{7}{8} \times \frac{6}{1} = \frac{42}{8}$$

$$= \frac{21}{4}$$

$$23. \quad a) \quad 1\frac{3}{4} \div 2\frac{1}{8}$$

$$\frac{7}{4} \div \frac{17}{8}$$

$$\frac{7}{4} \times \frac{8^2}{17} = \frac{14}{17}$$

$$b) \quad 3\frac{5}{6} \div 2\frac{1}{5}$$

$$\frac{23}{6} \div \frac{11}{5}$$

$$\frac{23}{6} \times \frac{5}{11} = \frac{115}{66}$$

$$c) \quad 3\frac{1}{2} \div 1\frac{3}{8}$$

$$\frac{7}{2} \div \frac{11}{8}$$

$$\frac{7}{2} \times \frac{8^4}{11} = \frac{28}{11}$$

$$d) \quad 2\frac{1}{5} \div 4\frac{2}{5}$$

$$\frac{11}{5} \div \frac{22}{5}$$

$$\frac{11}{5} \times \frac{5^1}{22} = \frac{11}{22}$$

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

$$25. \quad \frac{3}{4} - \frac{5}{8}$$

$$\frac{6}{8} - \frac{5}{8} = \frac{1}{8}$$

She needs $\frac{1}{8}$ of a cup

$$27. \quad \frac{1}{3} + \frac{1}{6} + \frac{1}{5}$$

$$\frac{10}{30} + \frac{5}{30} + \frac{6}{30} = \frac{21}{30} \text{ or } \frac{7}{10}$$

walk $1 - \frac{7}{10} = \frac{3}{10}$ walk to school

$$b) \quad \frac{3}{10} \text{ of } 30$$

$$\frac{1}{10} \text{ of } 30 = 3$$

$$\frac{3}{10} \text{ of } 30 = 3 \times 3$$

$$= 9$$

9 students walk

$$28 \text{ a) } \frac{1}{5} + \frac{2}{5} \times \frac{3}{5}$$

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

$$\frac{3}{5}$$

$$b) \frac{4}{5} \div \left(\frac{2}{3} - \frac{3}{10} \right)$$

$$\frac{4}{5} \div \left(\frac{20}{30} - \frac{9}{30} \right)$$

$$\frac{4}{5} \div \frac{11}{30}$$

$$\frac{4}{5} \times \frac{30}{11} = \frac{120}{55}$$

$$= \frac{24}{11}$$

$$c) \frac{7}{3} + \frac{1}{6} \times \frac{2}{5}$$

$$\frac{7}{3} + \frac{2}{30}$$

$$\frac{70}{30} + \frac{2}{30} = \frac{72}{30}$$

$$= \frac{12}{5}$$

$$d) \frac{7}{8} \div \frac{5}{6} \times \frac{4}{7}$$

$$\frac{7}{8} \times \frac{6}{5} \times \frac{4}{7}$$

$$\frac{42}{40} \times \frac{4}{7}$$

$$\frac{168}{280} = \frac{42}{70}$$

$$= \frac{6}{10}$$

$$= \frac{3}{5}$$

29. a)

$$\frac{2}{3} + \frac{1}{4} - \frac{1}{6}$$

$$\frac{8}{12} + \frac{3}{12} - \frac{2}{12} = \frac{9}{12}$$

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

b) $\frac{3}{2} \times (\frac{4}{3} - \frac{1}{6})$

$$\frac{3}{2} \times (\frac{8}{6} - \frac{1}{6})$$

$$\frac{3}{2} \times \frac{7}{6} = \frac{21}{12}$$

$$= \frac{7}{4}$$

c) $\frac{9}{8} \div (\frac{3}{4} + \frac{3}{2})$

$$\frac{9}{8} \div (\frac{3}{4} + \frac{6}{4})$$

$$\frac{9}{8} \div \frac{9}{4}$$

$$\frac{9}{8} \times \frac{4}{9} = \frac{4}{8}$$

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

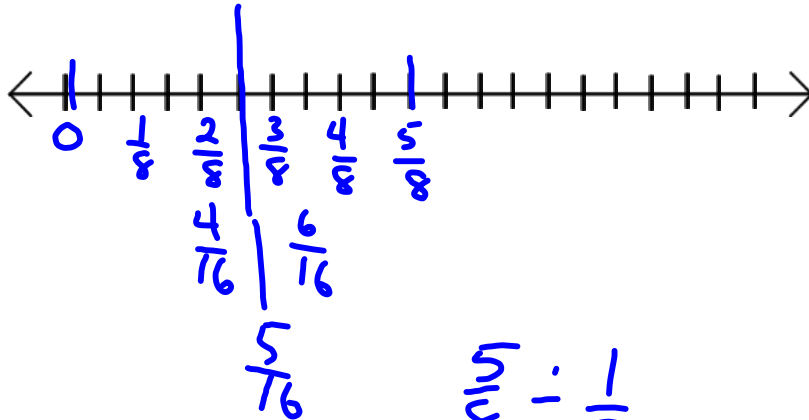
d) $\frac{2}{3} \times (\frac{1}{8} + \frac{5}{6} - \frac{3}{4})$

$$\frac{2}{3} \times (\frac{3}{24} + \frac{20}{24} - \frac{18}{24})$$

$$\frac{2}{3} \times \frac{5}{24} = \frac{10}{72}$$

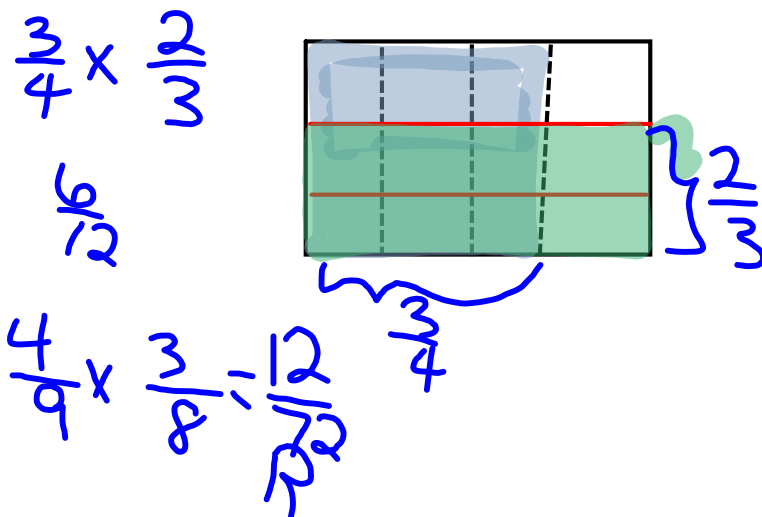
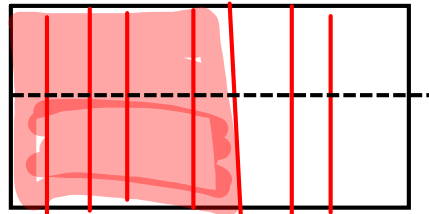
$$= \frac{5}{36}$$

$$\frac{2}{5} \div 2$$



$$\frac{2}{5} \div \frac{1}{5}$$

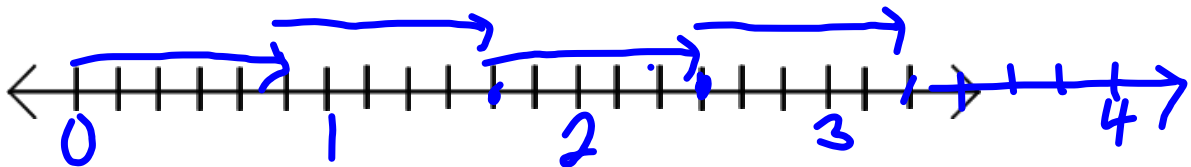
$$\frac{2}{5} \div \frac{1}{5} = 2$$



$$\frac{2}{3} \times \frac{2}{3} = \frac{4}{9}$$

$$\frac{7}{2} \div \frac{1}{4} = \frac{7}{2} \times \frac{4}{1} = \frac{28}{2} = 14$$

$$4 \div \frac{5}{6}$$



$$4\frac{4}{5}$$