

# WARM UP GRADE 8

Jan. 31, 2019

Model with blocks and number lines. State the answer

a)  $\frac{5}{6} \times 4$

4 groups of  $\frac{5}{6}$



Remodel answer



$3 \frac{2}{6}$

$= 3 \frac{1}{3}$  Reduce fraction

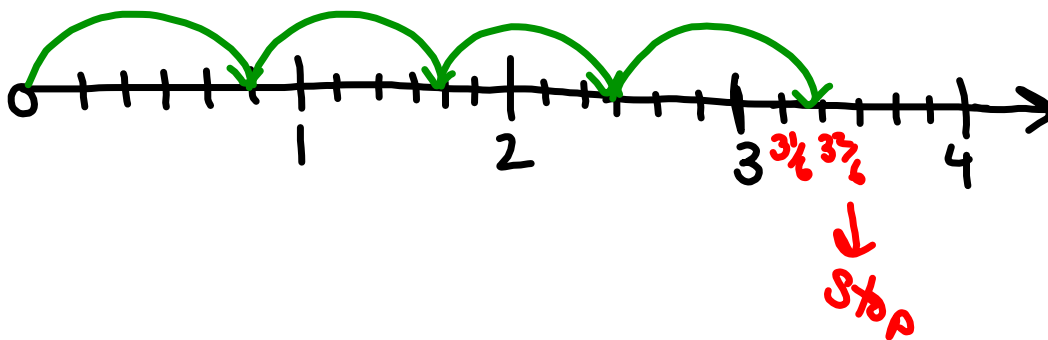
b)  $5 \times \frac{4}{3}$



Redraw answer



$6 \frac{2}{3}$



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5.  $\frac{5}{9}$  of 45

$$\frac{5}{9} \times 45 \text{ or } 45 \times \frac{5}{9}$$

$$\frac{1}{9} \rightarrow 5$$

$$\frac{5}{9} \rightarrow 25$$

9  $\frac{1}{12}$  of 36

$$\frac{1}{12} \times 36 \text{ or } 36 \times \frac{1}{12}$$

$$\frac{1}{12} \rightarrow 3$$

b)  $\frac{3}{8}$  of 32

$$\frac{3}{8} \times 32 \text{ or } 32 \times \frac{3}{8}$$

$$\frac{1}{8} \rightarrow 4$$

$$\frac{3}{8} \rightarrow 12$$

d)  $\frac{4}{5}$  of 25

$$\frac{4}{5} \times 25 \text{ or } 25 \times \frac{4}{5}$$

$$\frac{1}{5} \rightarrow 5$$

$$\frac{4}{5} \rightarrow 20$$

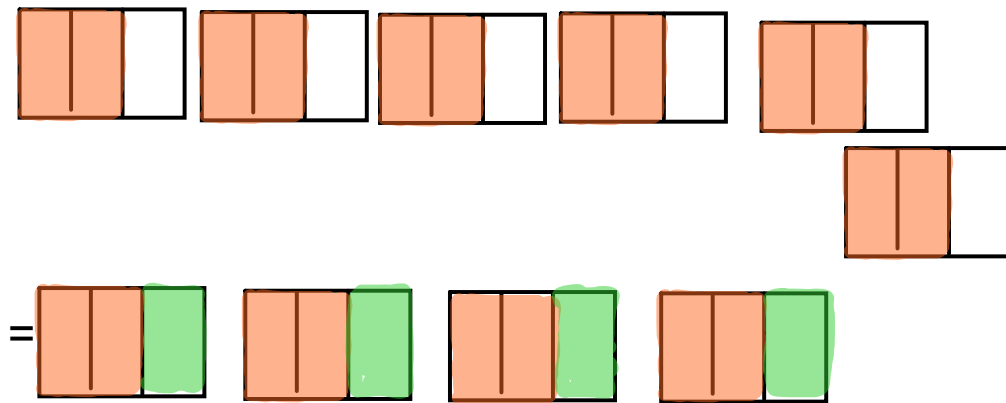
$$\star 6 \text{ a) } \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 3 \times \frac{1}{4} = \frac{3}{4} \quad \frac{1}{4} \times 3$$

b)  $7 \times \frac{2}{5} = \frac{14}{5}$  or  $\frac{2}{5} \times 7$

c)  $\frac{3}{10} + \frac{3}{10} + \frac{3}{10} + \frac{3}{10}$

$$4 \times \frac{3}{10} = \frac{12}{10} \text{ or } \frac{3}{10} \times 4$$

$$7. \frac{2}{3} \times 6$$



$$\frac{2}{3} \times 6 = \frac{12}{3} \text{ or } 4$$

$$8a) \frac{4}{5} \times 4 = \frac{16}{5} \text{ or } 3\frac{1}{5}$$

$$b) \frac{1}{2} \times 9 = \frac{9}{2} \text{ or } 4\frac{1}{2}$$

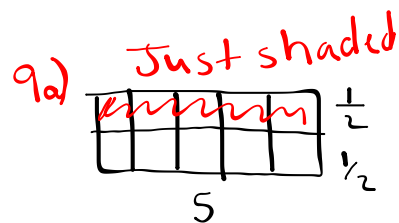
$$c) \frac{5}{6} \times 3 = \frac{15}{6} \text{ or } 2\frac{3}{6}$$

$$9a) \frac{1}{2} \times 5 = \frac{5}{2} \text{ or } 2\frac{1}{2}$$

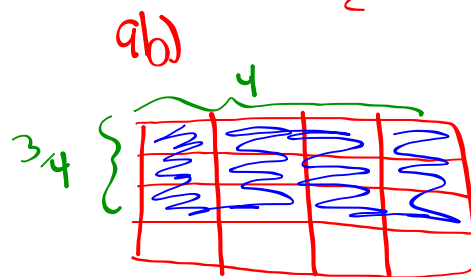
$$b) \frac{3}{4} \times 4 = \frac{12}{4} \text{ or } 3$$

$$10a) \frac{1}{2} \times 4 = 2$$

$$b) \frac{2}{3} \times 5 = \frac{10}{3}$$



$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 5 \\ &= \frac{5}{2} \end{aligned}$$

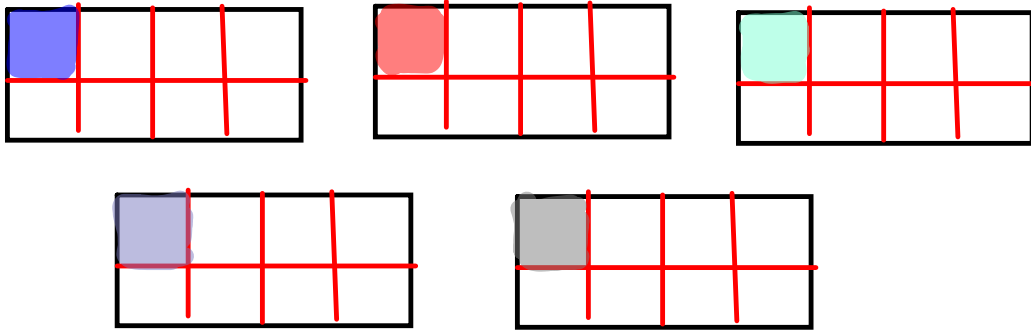


$$\begin{aligned} \text{Area} &= \frac{3}{4} \times 4 \\ &= \frac{12}{4} = 3 \end{aligned}$$

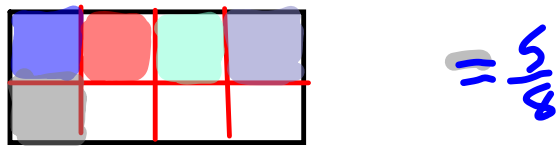
$$5 \times \frac{1}{2} = \frac{1}{2} \times 5$$



11  
★ a)  $5 \times \frac{1}{8}$



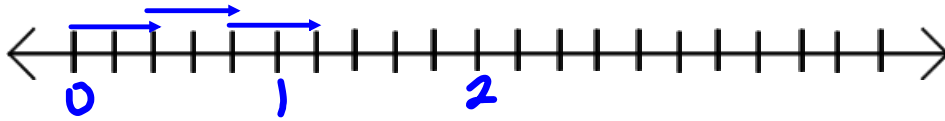
=



=  $\frac{5}{8}$

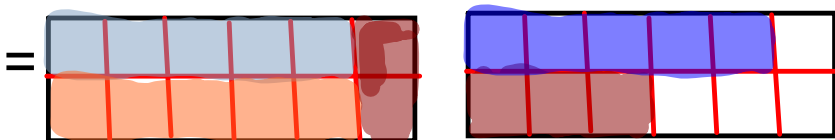
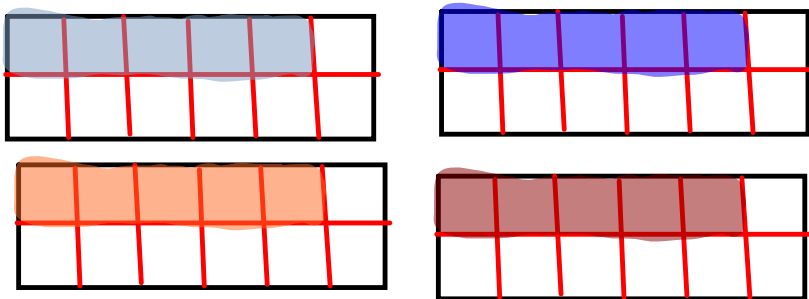
★ b)  $\frac{2}{5} \times 3$

□



=  $\frac{6}{5}$

★ c)  $4 \times \frac{5}{12}$



=  $\frac{20}{12}$  or  $1\frac{8}{12}$

$$12. \frac{1}{2} \times 24$$

$$= 12$$



$$b) \frac{1}{3} \times 24$$

$$= 8$$



$$c) \frac{1}{4} \times 24$$

$$= 6$$



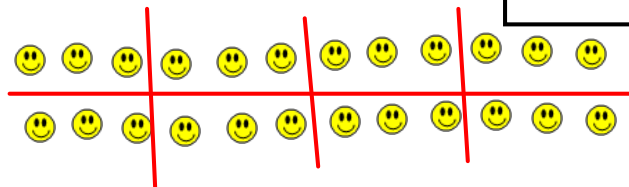
$$d) \frac{1}{6} \times 24$$

$$= 4$$



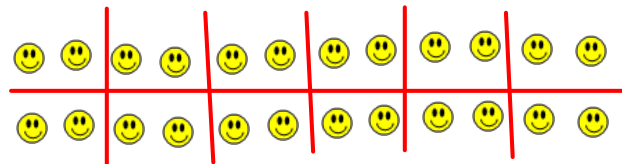
$$e) \frac{1}{8} \text{ of } 24$$

$$= 3$$



$$f) \frac{1}{12} \text{ of } 24$$

$$= 2$$



$$Ba) \frac{2}{2} \text{ of } 24 = 24$$

$$b) \frac{2}{3} \text{ of } 24 = 16$$

$$c) \frac{3}{4} \text{ of } 24 = 18$$

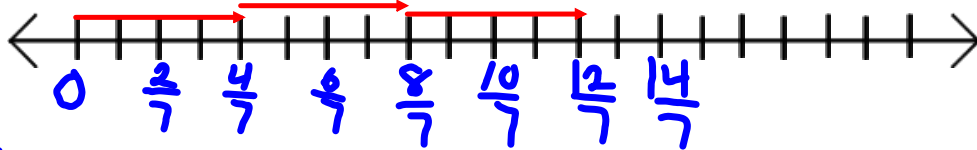
$$d) \frac{5}{6} \text{ of } 24 = 20$$

$$e) \frac{3}{8} \text{ of } 24 = 9$$

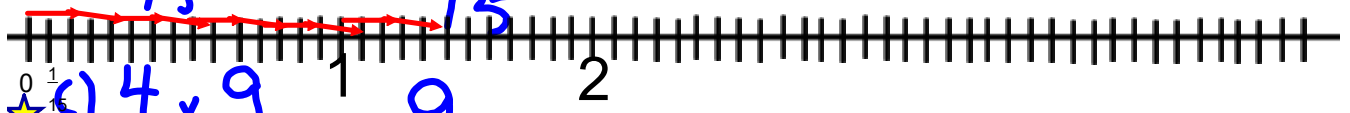
$$f) \frac{5}{12} \text{ of } 24 = 10$$

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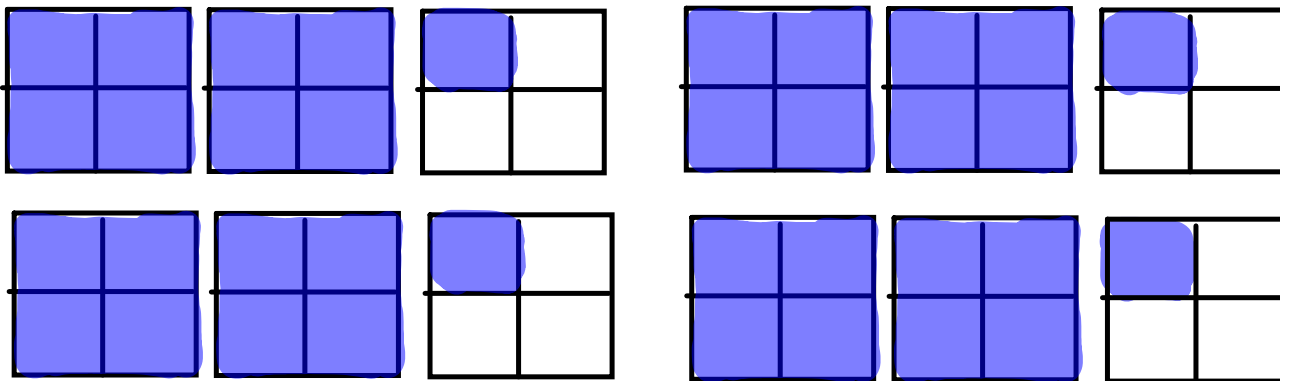
★  $14 \text{ a } 3 \times \frac{4}{7} = \frac{12}{7}$



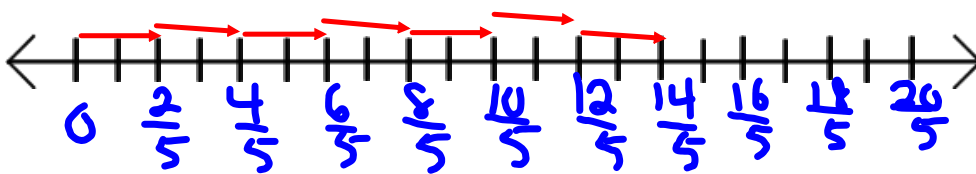
b)  $\frac{2}{15} \times 10 = \frac{20}{15}$



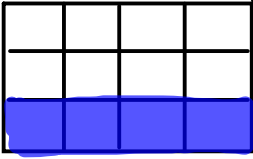
★  $14 \text{ c) } 4 \times \frac{9}{4} = 9$



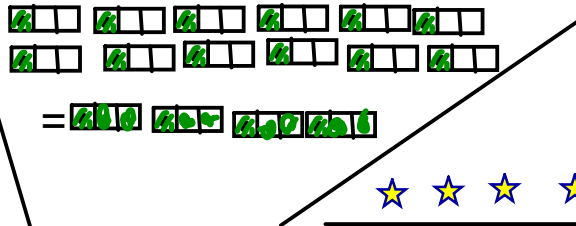
d)  $\frac{2}{5} \times 7 = \frac{14}{5}$




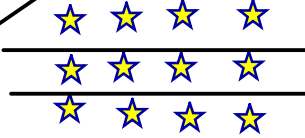
15. ★ or



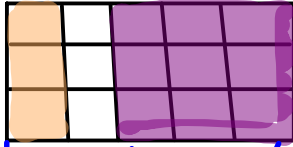
$\frac{1}{3}$  of 12 = 4




= 




b)  $\frac{1}{5} \times 15$  or

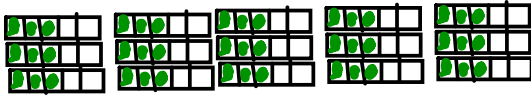


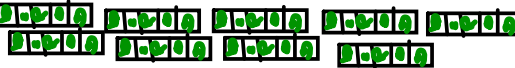
b  $\frac{1}{5}$   $\frac{3}{5}$



= 3 = 

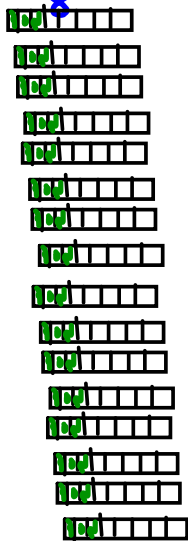
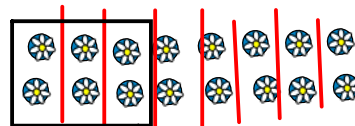
★ c)  $\frac{3}{5}$  of 15 = 9




= 

or

d)  $\frac{3}{8} \times 16$   
 $\frac{1}{8}$  of 16 = 2  
 $\frac{3}{8}$  of 16 = 2 x 3 = 6

cut a block into 16 then find  $\frac{1}{8}$  of it shade that in then do that by the numerator

= 

or





$$16 \text{ a) } \star 3 \times \frac{4}{5} = \frac{12}{5}$$

$$b) 5 \times \frac{7}{9} = 3\frac{5}{9}$$

$$\star c) \frac{5}{3} \times 6 = \frac{30}{3} = 10 \quad d) \frac{1}{2} \times 5 = \frac{5}{2}$$

$$e) 12 \times \frac{7}{8} = \frac{84}{8} \quad \star f) \frac{2}{4} \times 9 = \frac{18}{4}$$

$$\star 17) \frac{2}{3} \times 24$$

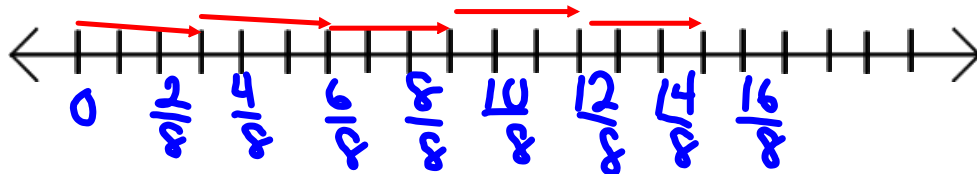
1/3 of 24 is 8

so

2/3 of 24 is  $2 \times 8 = 16$

$$18. 5 \times \frac{3}{8}$$

I want to give  $\frac{3}{8}$  of a choc. bar to 5 friends. How many bars do I need?



$\frac{15}{8}$  or  $1\frac{7}{8}$  bars.

$$20. \frac{4}{7} \text{ of } 28$$

$$\frac{1}{7} \text{ of } 28 = 4$$

$$\frac{4}{7} \text{ of } 28 = 4 \times 4 = 16$$



## Multiplying Fractions - using modeling

**We have multiplied a fraction by a whole number, and a whole number by a fraction.**  $6 \times \frac{2}{3}$  and  $\frac{2}{3} \times 6$

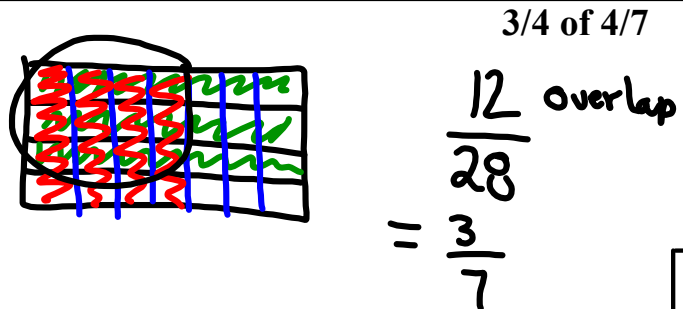
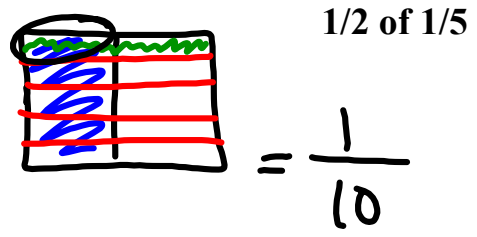
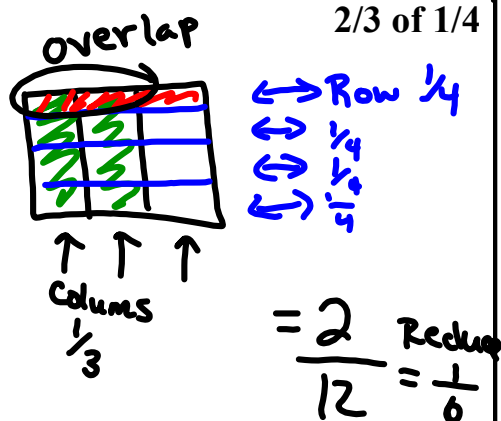
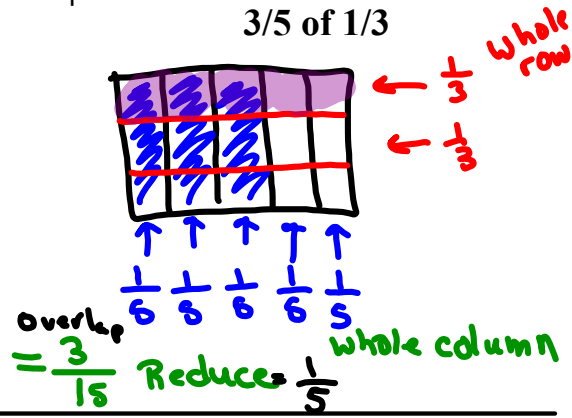
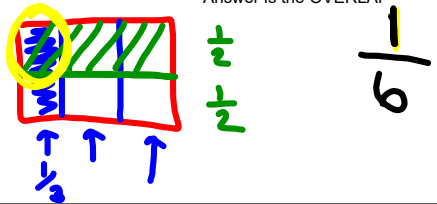
**Now we are going to multiply a fraction by a fraction, using modeling.**

**You have to look for a pattern that exists in each of these methods to determine how to multiply fractions without modeling.**

where the colors overlap is the answer to multiplication

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

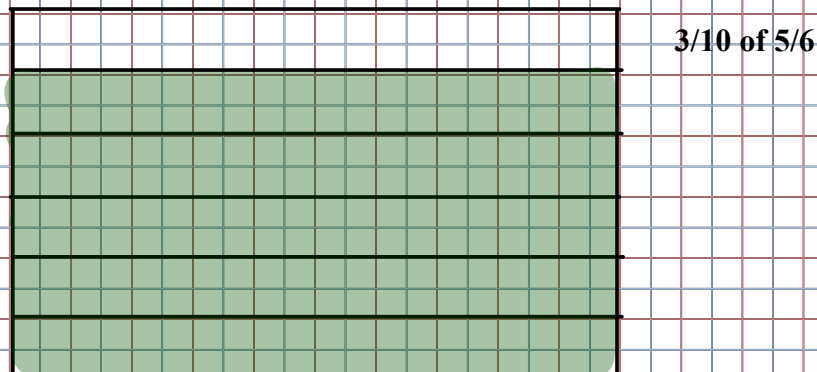
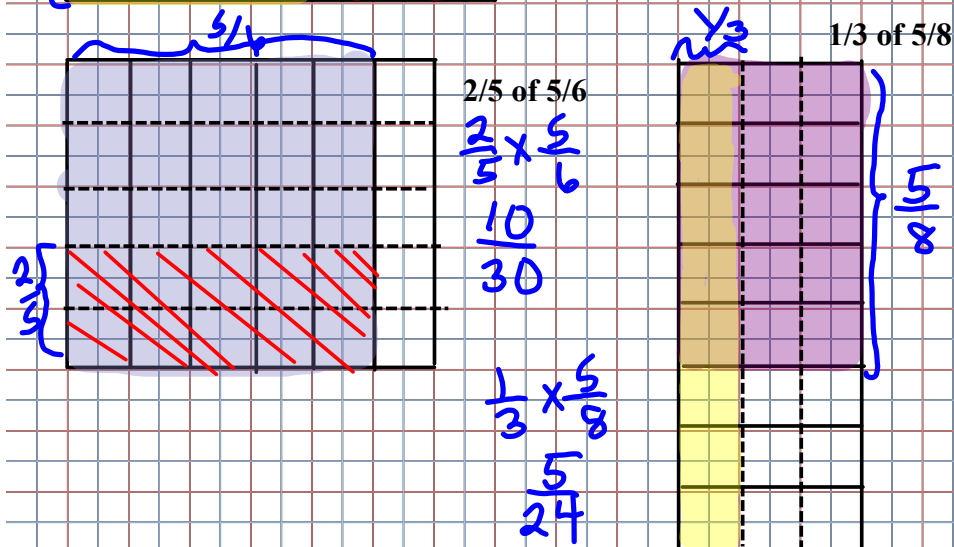
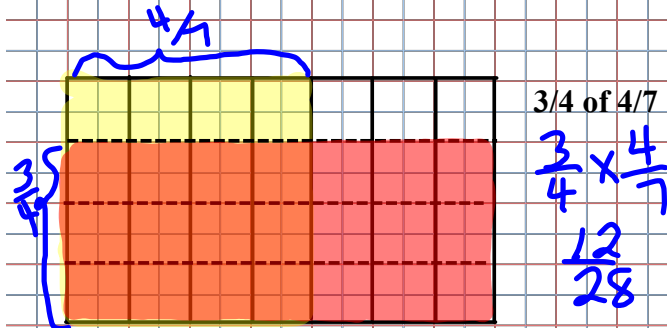
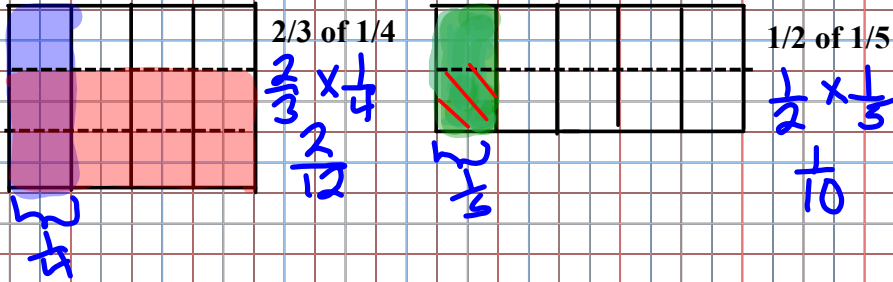
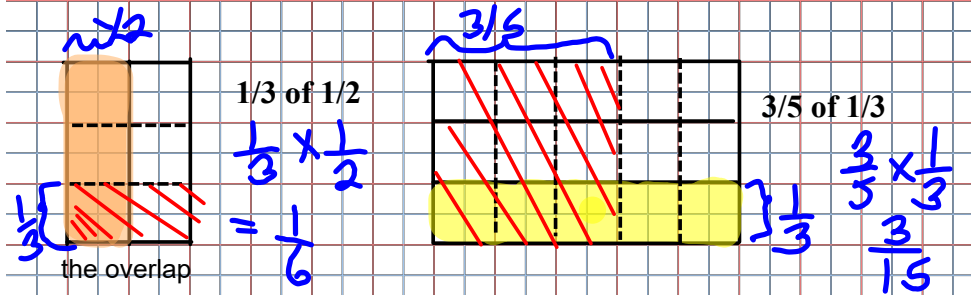
Step 1) Draw a rectangle that is divided into 2 vertically (Denominator of first fraction).  
 Step 2) Shade in 1 (numerator) of first fraction.  
 Step 3) Divide Same Rectangle HORIZONTALLY by 3 (Denominator of second fraction)  
 Step 4) Shade in 1 (numerator) of second fraction.



$\frac{2}{5}$  of  $\frac{5}{6}$

$\frac{1}{3}$  of  $\frac{5}{8}$

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



5 model  
 $\frac{3}{5} \times \frac{1}{4}$

#6 ab #8a  
#7d

**Homework**

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#5(do it all together), 6, 7d, 8(a,c,e)

model