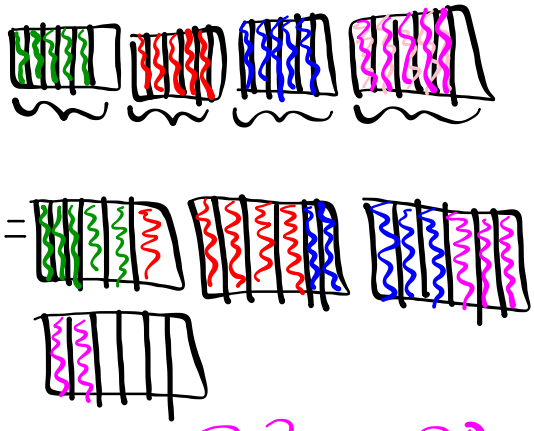
WARM UP GRADE 8

Feb. 1, 2016

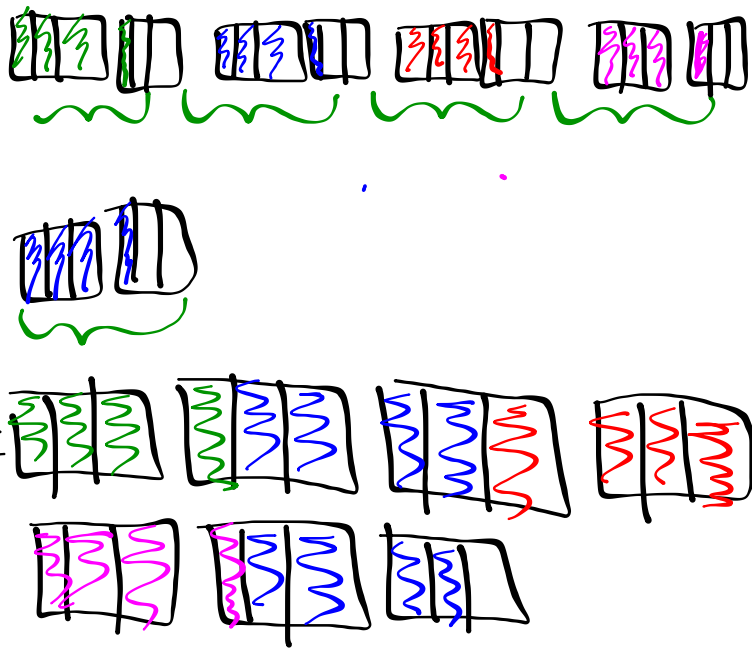
Model with blocks and number lines. State the answer

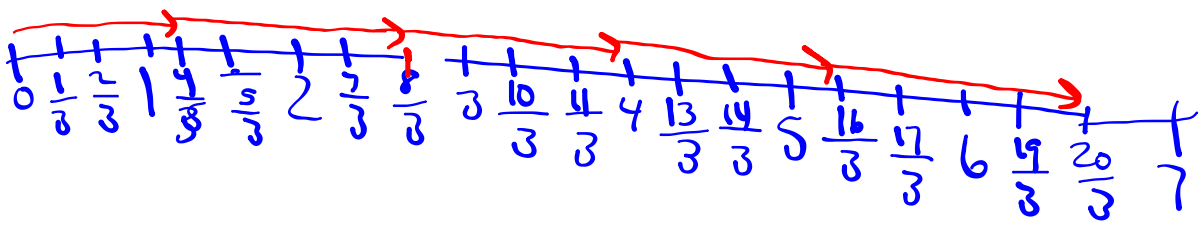
a) $\frac{5}{6} \times 4$



$3\frac{2}{6} = \frac{20}{6}$

b) $5 \times \frac{4}{3} = \frac{20}{3} = 6\frac{2}{3}$





pg 108

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

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

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

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

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

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

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

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

c) $\frac{1}{12}$ of 36

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

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

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

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

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

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

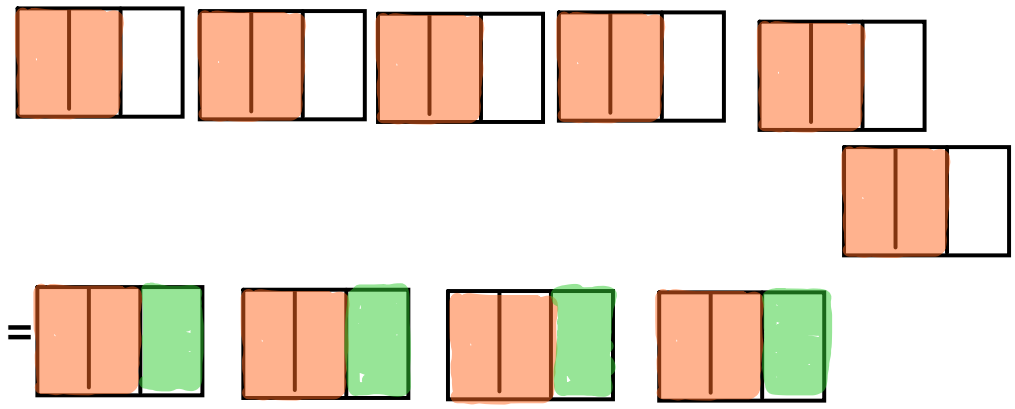
★ 6 a) $2\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 3 \times \frac{1}{4} = \frac{3}{4}$ $\frac{1}{4} \times 3$

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

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

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

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



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

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

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

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

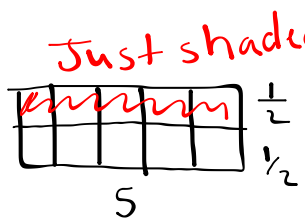
9a) $\frac{1}{2} \times 5 = \frac{5}{2}$ or $2\frac{1}{2}$

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

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

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

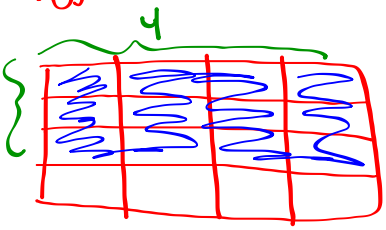
9a)



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

$= \frac{5}{2}$

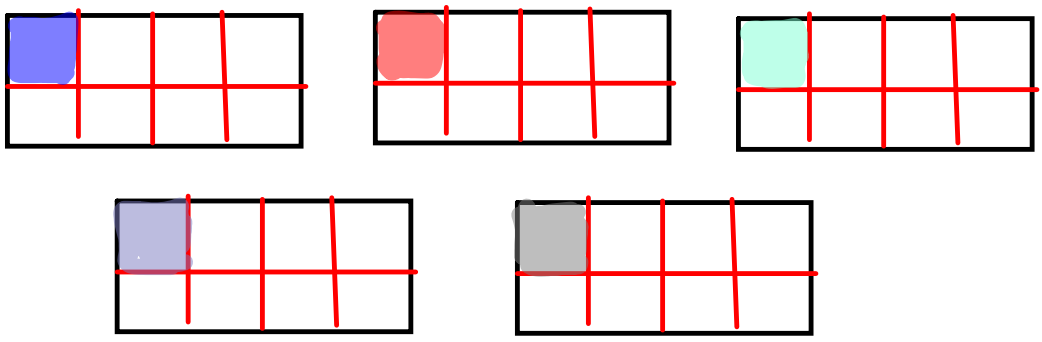
9b)



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

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

11 a) $5 \times \frac{1}{8}$



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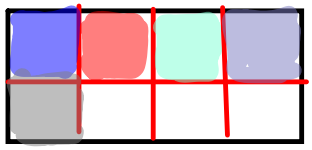
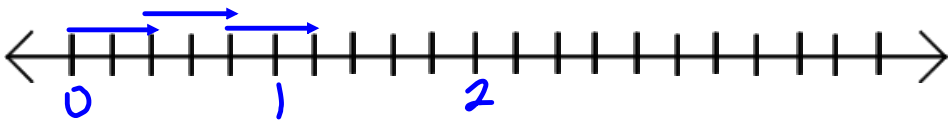


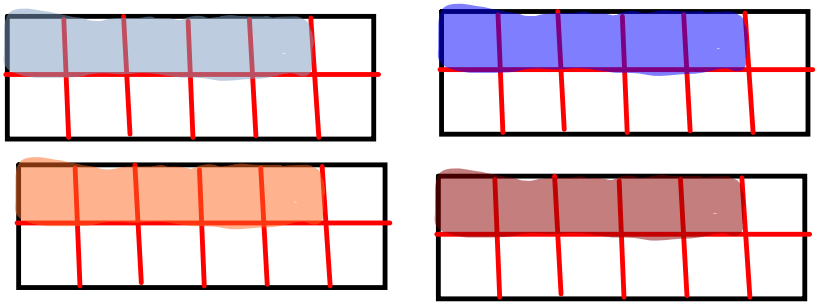
$= \frac{5}{8}$

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



$= \frac{6}{5}$

c) $4 \times \frac{5}{12}$



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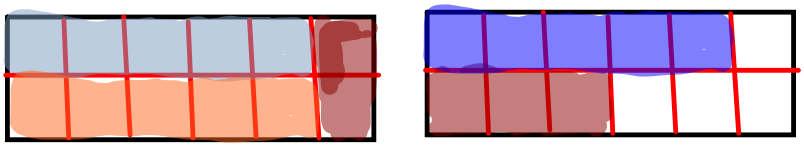


$= \frac{20}{12}$ or $1\frac{8}{12}$

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

$= 12$

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

$= 8$

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

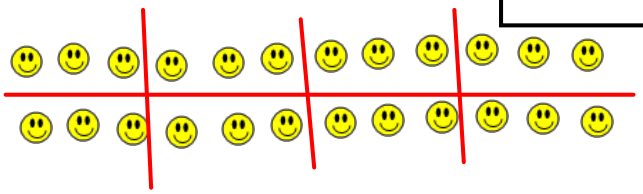
$= 6$

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

$= 4$

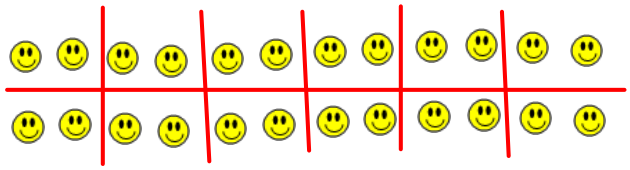
e) $\frac{1}{8}$ of 24

$= 3$



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

$= 2$



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

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

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

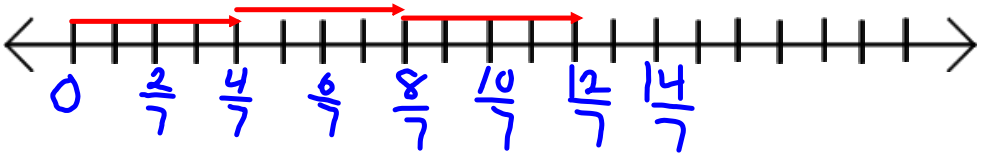
d) $\frac{5}{6}$ of $24 = 20$

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

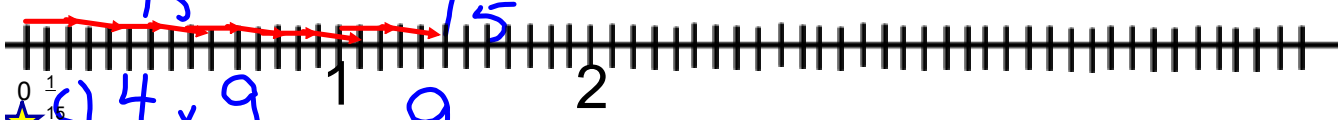
f) $\frac{5}{12}$ of $24 = 10$

pg 109

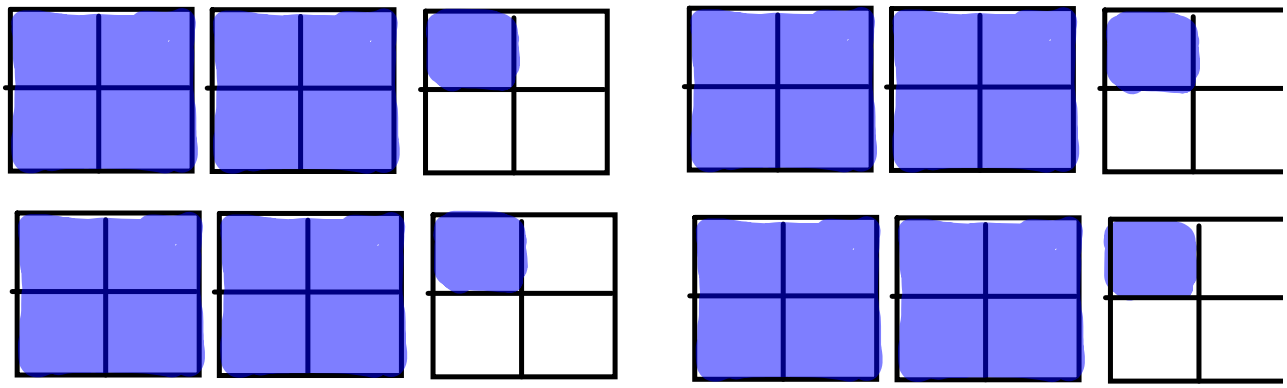
14 a) $3 \times \frac{4}{7} = \frac{12}{7}$



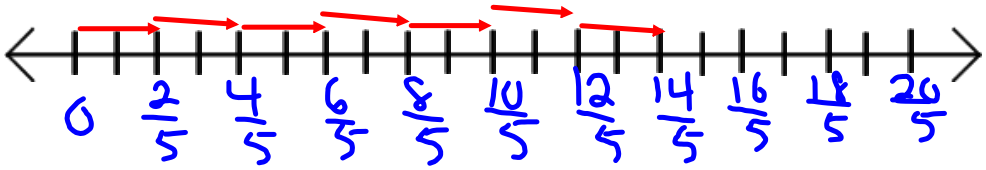
b) $\frac{2}{15} \times 10 = \frac{20}{15}$



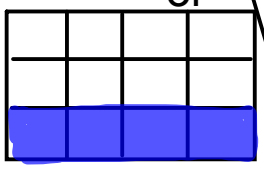
c) $4 \times \frac{9}{4} = 9$

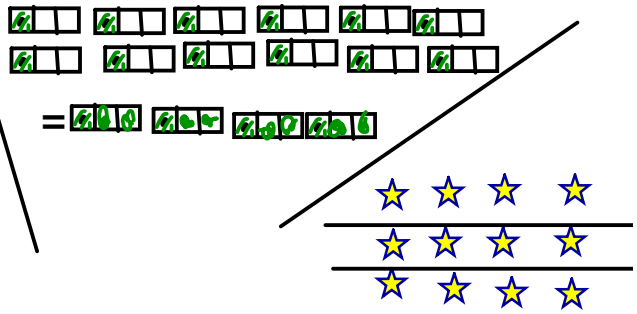


d) $\frac{2}{5} \times 7 = \frac{14}{5}$



15. or





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

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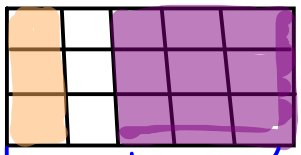
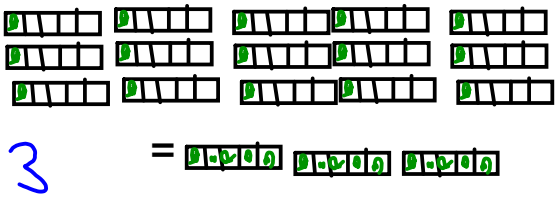
b) $\frac{1}{5} \times 15$ or

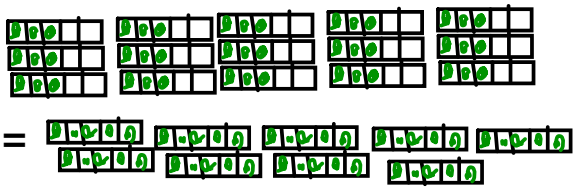


= 3



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

c) $\frac{3}{5}$ of 15 = 9



$\frac{1}{5}$ of 15 = 3 (x3)

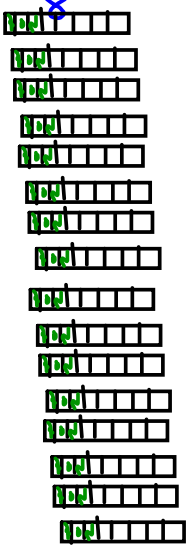
$\frac{3}{5}$ of 15 = 9

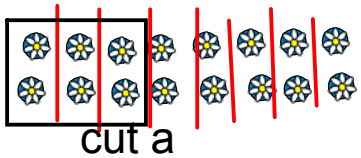
or

d) $\frac{3}{8} \times 16$

$\frac{1}{8}$ of 16 = 2

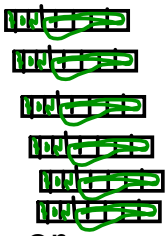
$\frac{3}{8}$ of 16 = 2 x 3 = 6

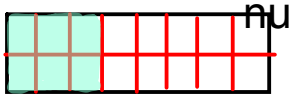




cut a block into 16 then find 1/8 of it shade that in then do that by the numerator

= or





16 a) $3 \times \frac{4}{5} = \frac{12}{5}$ b) $5 \times \frac{7}{9} = \frac{35}{9}$

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

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

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

1/3 of 24 is 8

so

2/3 of 24 is 2x8 = 16

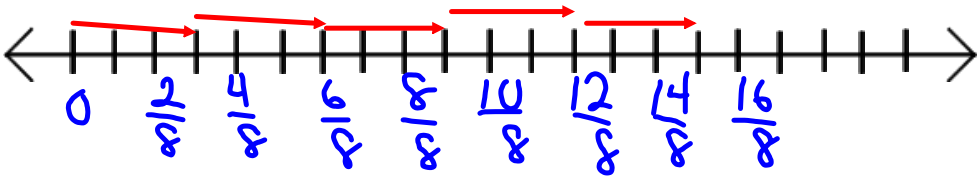
$3 \times \frac{7}{12} = \frac{21}{12} \overset{\div 3}{\underset{\div 3}{}}$ does it Reduce $= \frac{7}{4}$

$= 1\frac{9}{12} \overset{\div 3}{\underset{\div 3}{}}$

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

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

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

$\frac{4}{7}$ 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.

1/3 of 1/2

Step 1) Draw a rectangle that is divided into 3 vertically (Denomator of first fraction).

Step 2) Shade in 1 (numerator) of first fraction. (1 row)

Step 3) Divide Same Rectangle HORZONTALLY by 2 (Denominator of second fraction)

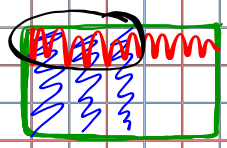
Step 4) Shade in 1 (numerator) of second fraction. (1 column)

Answer is the OVERLAP

1 piece

6 out of total squares

3/5 of 1/3



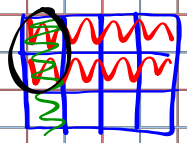
$\frac{3}{5}$ ← shade $\times \frac{1}{3}$ ← shade

$= \frac{3}{15}$ Reduce

$= \frac{1}{5}$

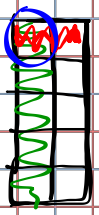
2/3 of 1/4

$\frac{2}{3} \times \frac{1}{4}$



$\frac{2}{12}$ overlap Reduce $= \frac{1}{6}$

1/2 of 1/5



$= \frac{1}{10}$ ← overlap

← total # of squares in Rectangle

3/4 of 4/7

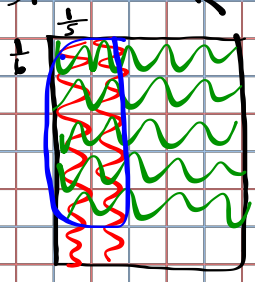
$\frac{3}{4} \times \frac{4}{7} = \frac{3 \times 4}{4 \times 7} = \frac{12}{28}$ Reduce $\frac{3}{7}$

$\frac{12}{28} =$

2/5 of 5/6

2 columns ← rows

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



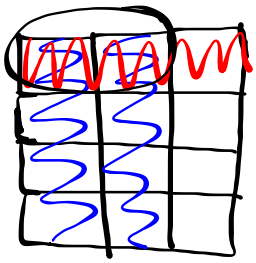
$= \frac{10}{30}$

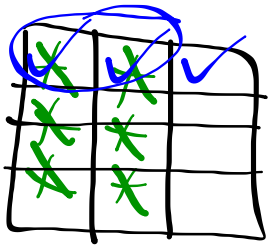
$= \frac{1}{3}$ Reduce

1/3 of 5/8

3/10 of 5/6

$$\frac{2}{3} \times \frac{1}{4} = \frac{2}{12} \overset{\text{Reduce}}{=} \frac{1}{6}$$





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

where the colors overlap is the answer to multiplication

1/3 of 1/2

Step 1) Draw a rectangle that is divided into _____ vertically (Denomator of first fraction).

Step 2) Shade in _____(numerator) of first fraction.

Step 3) Divide Same Rectangle HORZONTALLY by ___(Denominator of second fraction)

Step 4) Shade in _____(numerator) of second fraction.

Answer is the OVERLAP

3/5 of 1/3

2/3 of 1/4

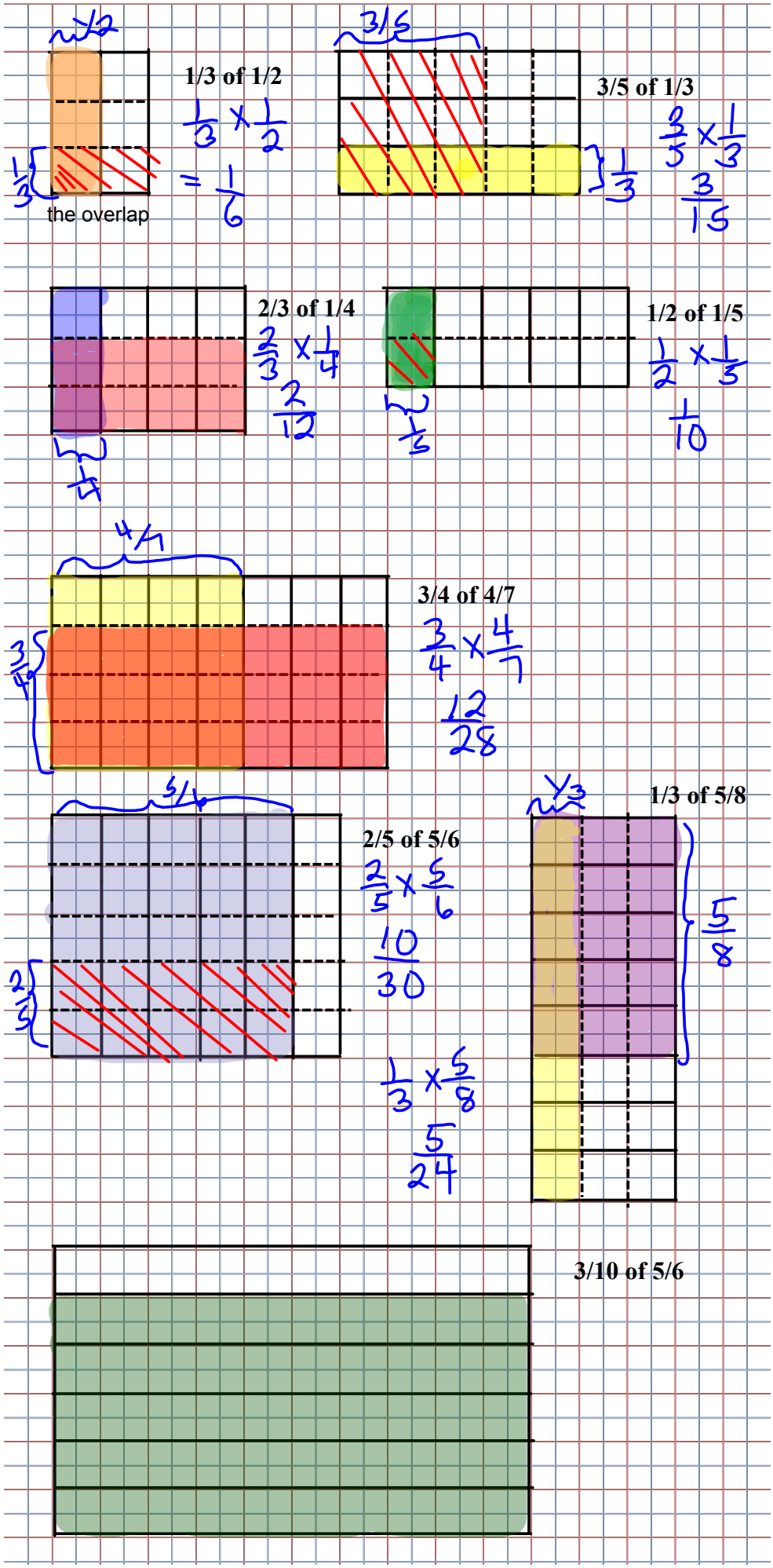
1/2 of 1/5

3/4 of 4/7

1/3 of 5/8

2/5 of 5/6

3/10 of 5/6


1/3 of 1/2
1/3 x 1/2
= 1/6
the overlap
3/5 of 1/3
3/5 x 1/3
3/15
2/3 of 1/4
2/3 x 1/4
2/12
1/2 of 1/5
1/2 x 1/5
1/10
3/4 of 4/7
3/4 x 4/7
12/28
2/5 of 5/6
2/5 x 5/6
10/30
1/3 of 5/8
1/3 x 5/8
5/24
3/10 of 5/6

Homework model

page 113 #5(do it all together), 6, 7d, 8(a,c,e)

5) $\frac{3}{5} \times \frac{1}{4}$ model and answer