

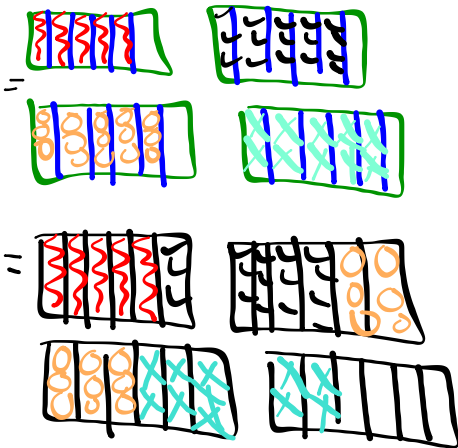
WARM UP GRADE 8

Jan. 18, 2017

Model with blocks and number lines. State the answer

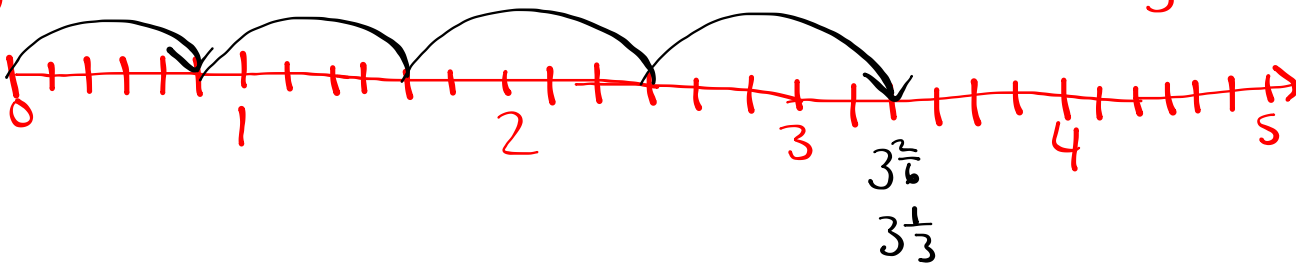
a) $\frac{5}{6} \times 4$ or $4 \times \frac{5}{6}$

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



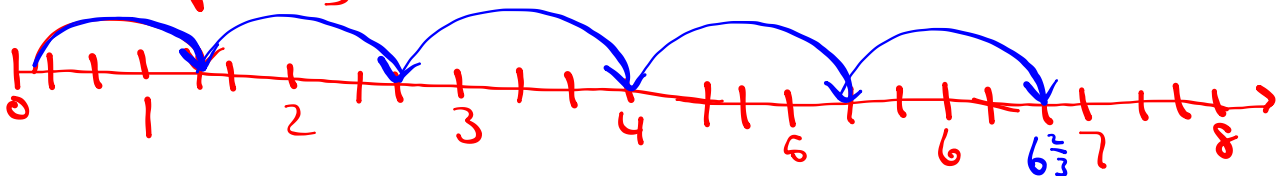
$= 3 \frac{2}{6} \div 2$ OR $\frac{20}{6}$
 $= 3 \frac{1}{3}$ ← Reduce $\frac{10}{3}$

a) 4 jumps of size $\frac{5}{6}$

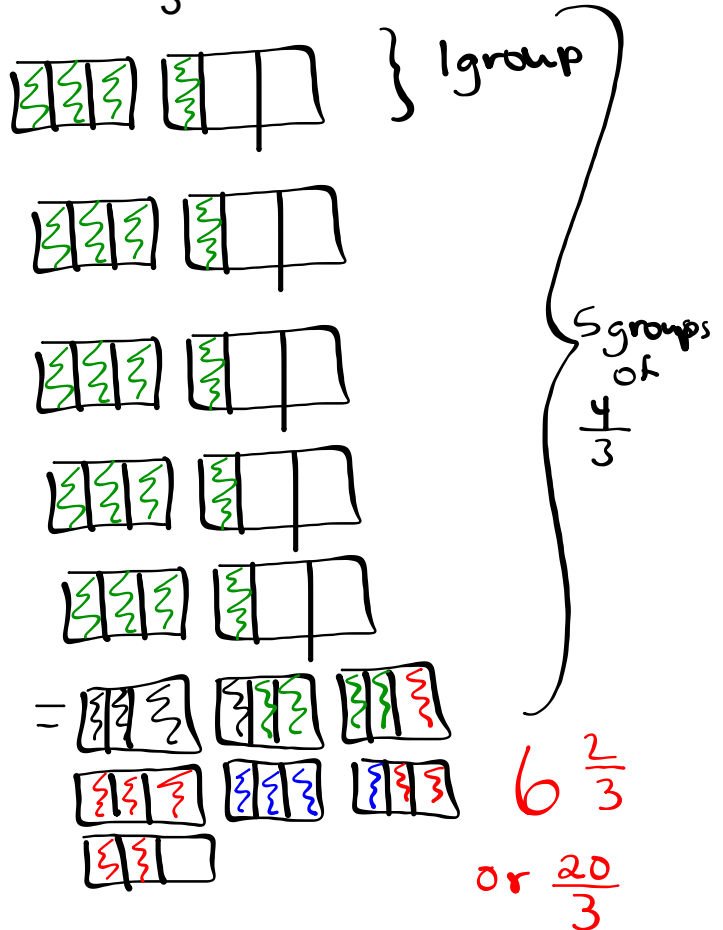


b) $5 \times \frac{4}{3}$

5 jumps of $\frac{4}{3} = 1 \frac{1}{3}$



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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

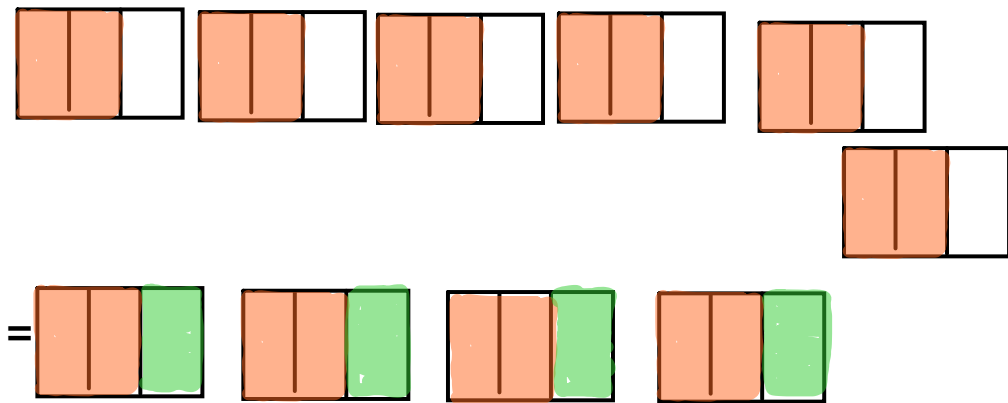
★ $6 \text{ of } \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 3 \times \frac{1}{4} = \frac{3}{4} \quad \frac{1}{4} \times 3$

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

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

$4 \times \frac{3}{10} = \frac{12}{10}$ 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 $4\frac{1}{2}$

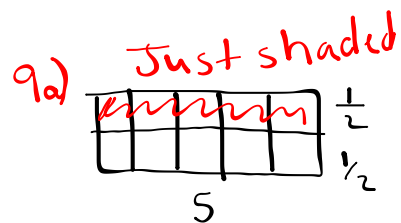
c) $\frac{5}{6} \times 3 = \frac{15}{6}$ or $2\frac{3}{6}$

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

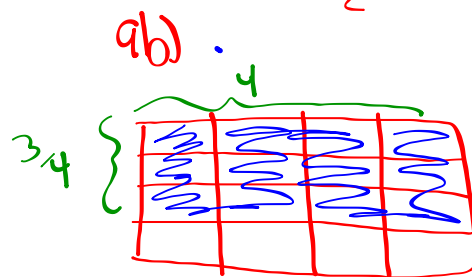
b) $\frac{3}{4} \times 4 = \frac{12}{4}$ or 3

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

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

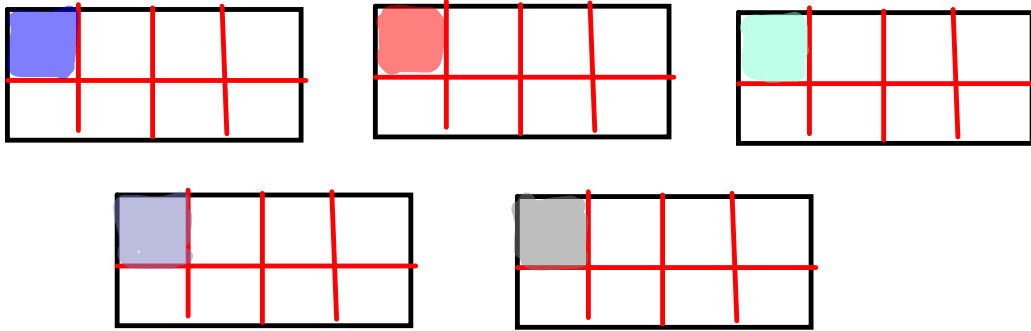


Area = $\frac{1}{2} \times 5$
 $= \frac{5}{2}$

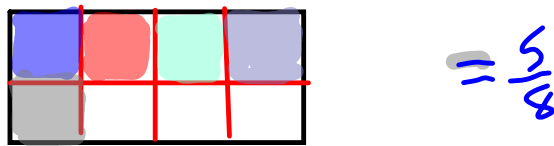


Area = $\frac{3}{4} \times 4$
 $= \frac{12}{4} = 3$

11
★ a) $5 \times \frac{1}{8}$



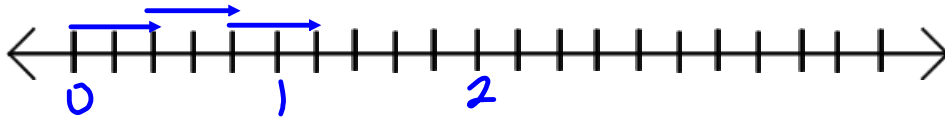
=



= $\frac{5}{8}$

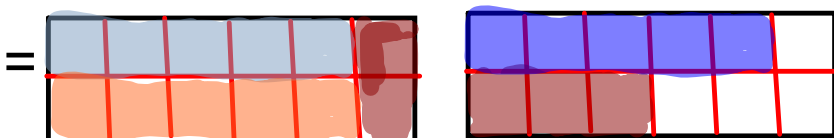
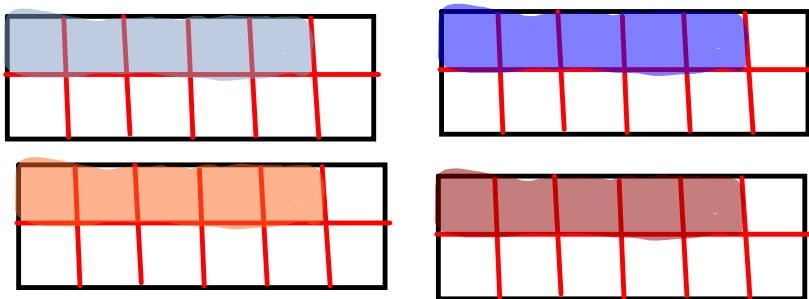
★ b) $\frac{2}{5} \times 3$

□



= $\frac{6}{5}$

★ c) $4 \times \frac{5}{12}$



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

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

$$= 12$$



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

$$= 8$$



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

$$= 6$$



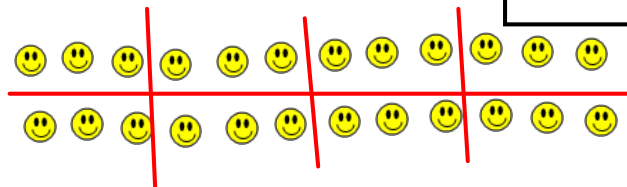
$$d) \frac{1}{6} \times 24$$

$$= 4$$



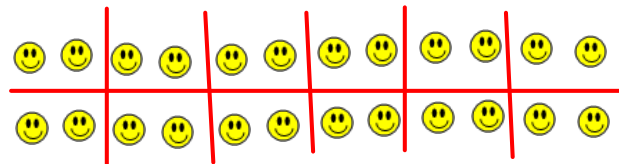
$$e) \frac{1}{8} \text{ of } 24$$

$$= 3$$



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

$$= 2$$



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

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

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

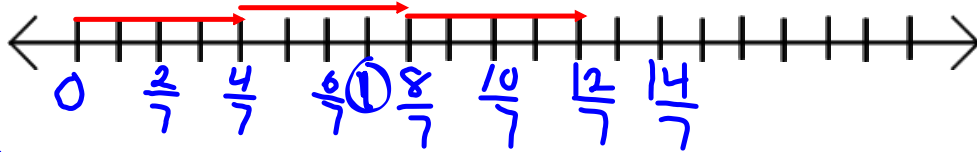
$$d) \frac{5}{6} \text{ of } 24 = 20$$

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

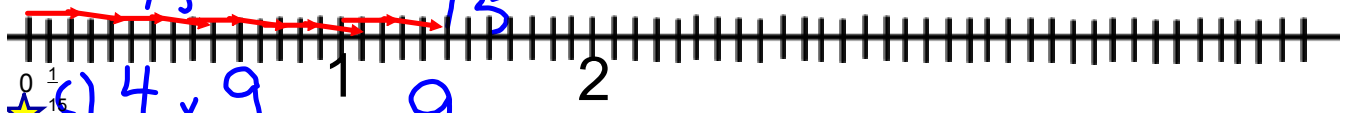
$$f) \frac{5}{12} \text{ of } 24 = 10$$

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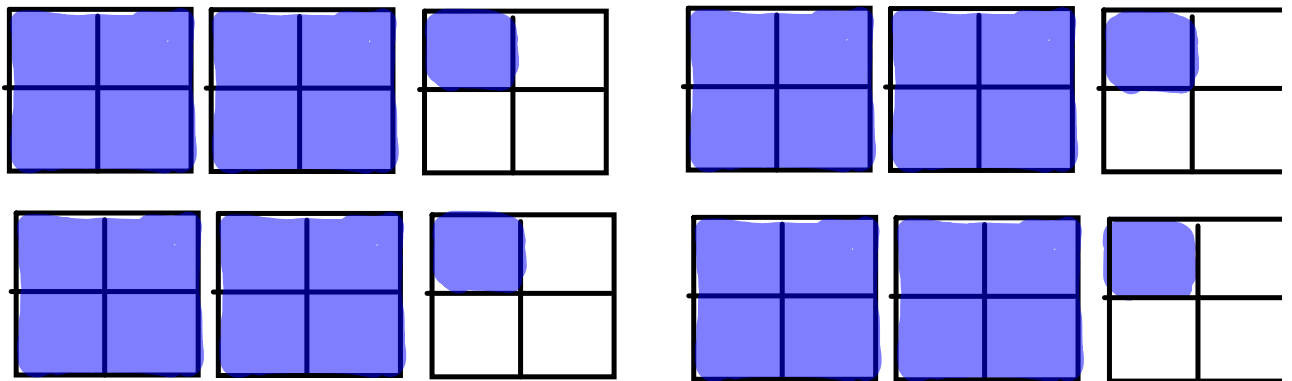
★ 14 a) $3 \times \frac{4}{7} = \frac{12}{7}$



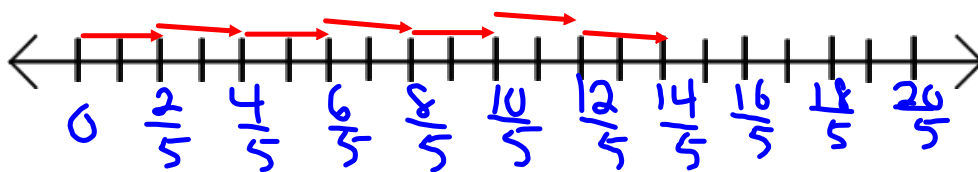
b) $\frac{2}{15} \times 10 = \frac{20}{15}$



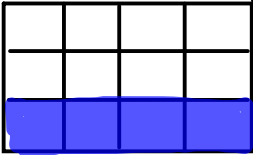
★ 14 c) $4 \times \frac{9}{4} = 9$



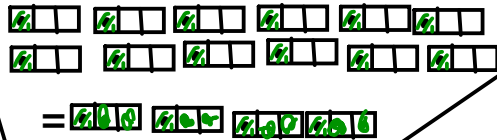
d) $\frac{2}{5} \times 7 = \frac{14}{5}$



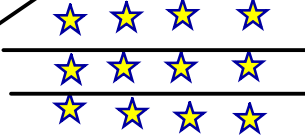
15. ★ or



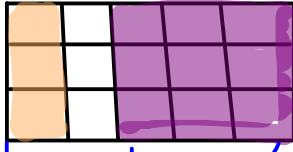
$\frac{1}{3}$ of 12 = 4




=




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



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

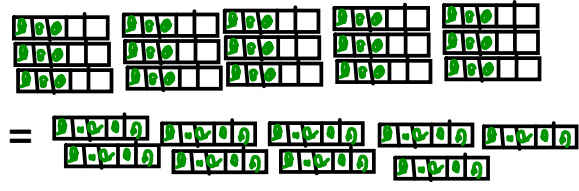


= 3 =



★ $\frac{3}{5}$ of 15 = 9

$\frac{1}{5}$ of 15 = 3



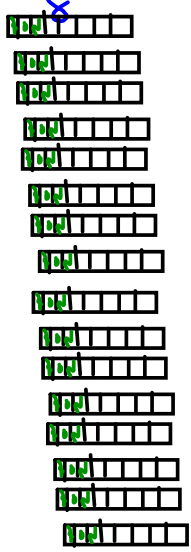
=

or

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

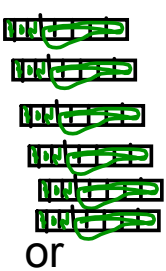
$\frac{1}{8}$ of 16 = 2

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

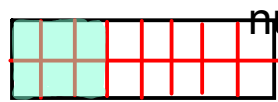



cut a block into 16 then find $\frac{1}{8}$ of it shade that in then do that by the numerator

=



or



$$16 \text{ a) } \star \frac{3}{1} \times \frac{4}{5} = \frac{12}{5}$$

$$b) 5 \times \frac{7}{9} = \frac{35}{9}$$

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

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

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

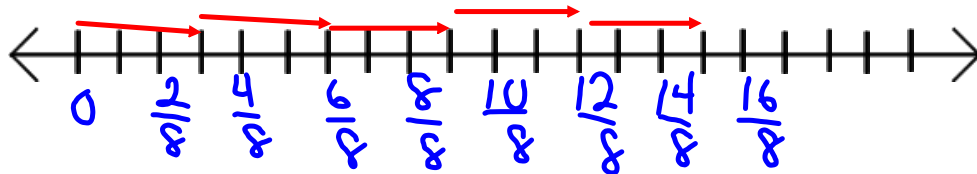
1/3 of 24 is 8

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

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

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

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

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

Step 4) Shade in 1 (numerator) of second fraction. Answer is the OVERLAP

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

cut into thirds

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

$\frac{3}{5} \times \frac{1}{3} = \frac{3}{15} \xrightarrow{\div 3} \frac{1}{5}$ Reduce

whole row makes 1/3

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

$\frac{2}{12} \xrightarrow{\div 2} \frac{1}{6}$ Reduce

1/4 is the whole row

$\frac{1}{2} \times \frac{1}{5}$ 1/2 of 1/5

$= \frac{1}{10}$

1/5 is whole row

$\frac{3}{4}$ of $\frac{4}{7}$

$= \frac{12}{28} \xrightarrow{\div 2} \frac{6}{14} \xrightarrow{\div 2} \frac{3}{7}$

overlap

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

$\frac{10}{30} \xrightarrow{\div 10} \frac{1}{3}$

shade 5/6 rows

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

$= \frac{5}{24}$

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

$\frac{15}{60} \xrightarrow{\div 15} \frac{1}{4}$ Reduce

Homework

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