

top ← shaded
bottom ← whole
 Cut in to

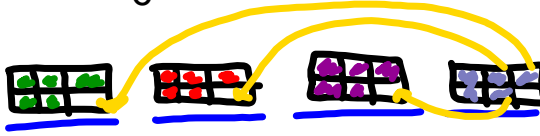
WARM UP GRADE 8

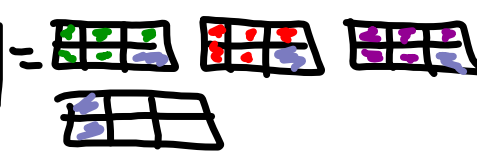
Nov. 28, 2022

Model with blocks or number lines. State the answer

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

of group

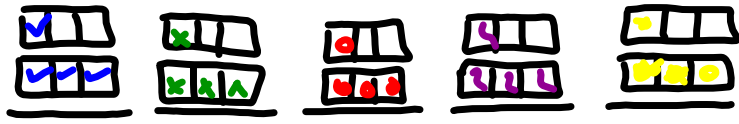


= 

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

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

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



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

$$\frac{5}{6} \times \frac{4}{1} = \frac{20}{6}$$

Rule $\frac{\text{Top} \times \text{Top}}{\text{Bot} \times \text{Bot}}$

$$3\frac{2}{6} \begin{array}{l} \div 2 \\ \div 2 \end{array} \text{Reduce}$$
$$3\frac{1}{3}$$

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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

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

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

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

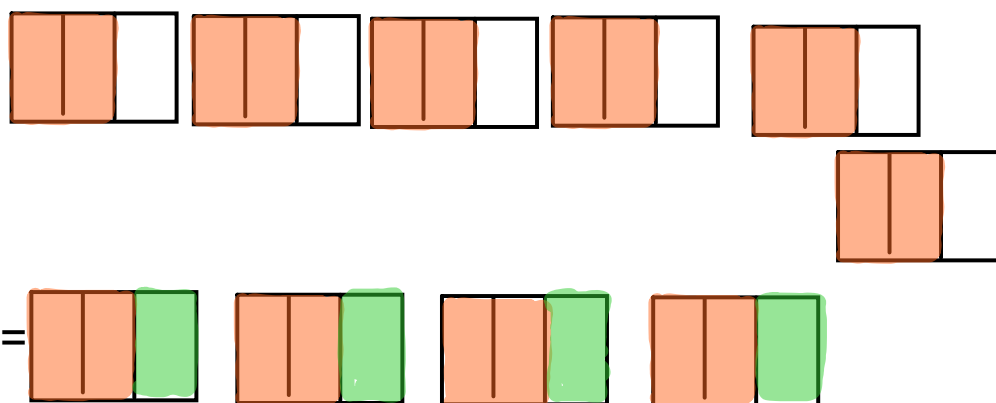
$$\star 6 \text{ a) } \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 3 \times \frac{1}{4} = \frac{3}{4} \quad \frac{1}{4} \times 3$$

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

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

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

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



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

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

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

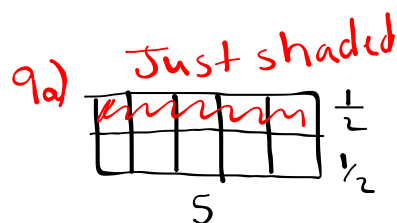
$$c) \frac{5}{6} \times 3 = \frac{15}{6} \text{ or } 2\frac{3}{6}$$

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

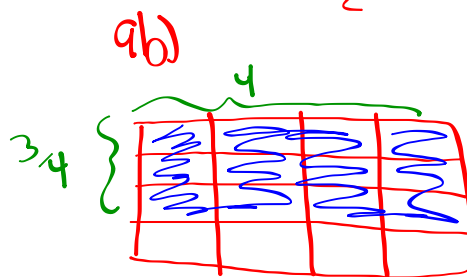
$$b) \frac{3}{4} \times 4 = \frac{12}{4} \text{ or } 3$$

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

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

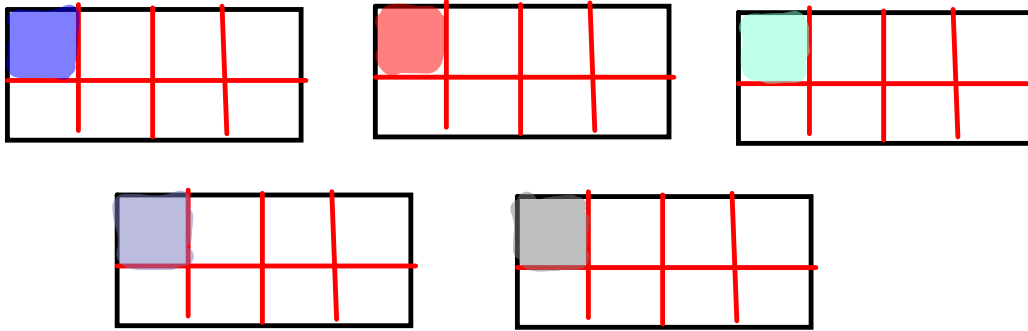


$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 5 \\ &= \frac{5}{2} \end{aligned}$$

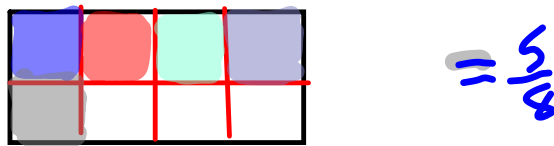


$$\begin{aligned} \text{Area} &= \frac{3}{4} \times 4 \\ &= \frac{12}{4} = 3 \end{aligned}$$

11
★ a) $5 \times \frac{1}{8}$

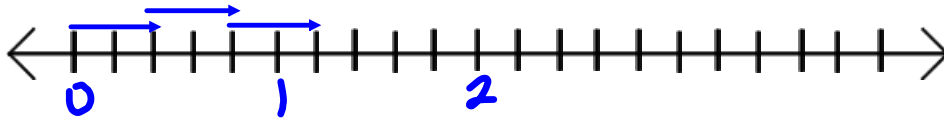


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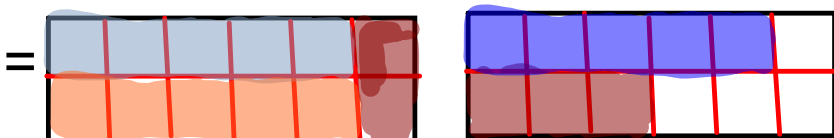
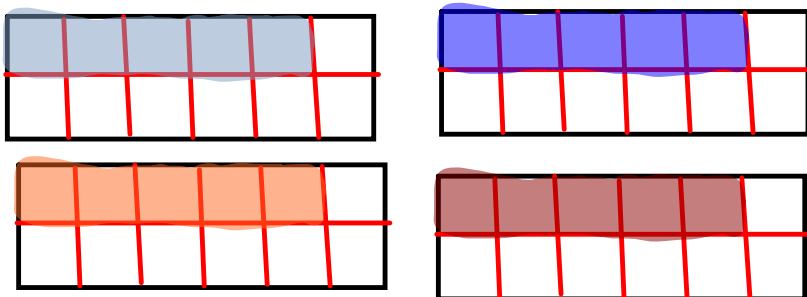
★ b) $\frac{2}{5} \times 3$

□



= $\frac{6}{5}$

★ c) $4 \times \frac{5}{12}$



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

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

$$= 12$$



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

$$= 8$$



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

$$= 6$$



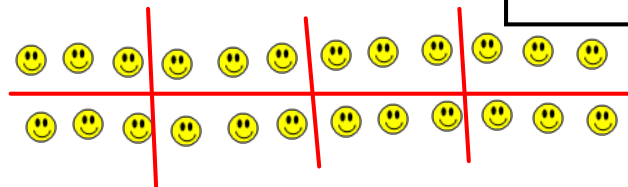
$$d) \frac{1}{6} \times 24$$

$$= 4$$



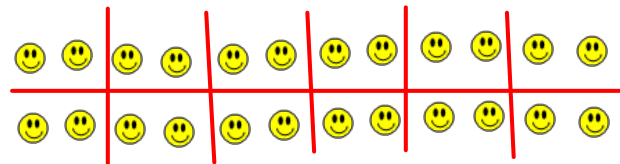
$$e) \frac{1}{8} \text{ of } 24$$

$$= 3$$



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

$$= 2$$



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

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

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

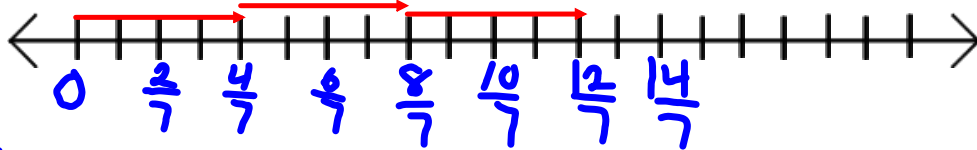
$$d) \frac{5}{6} \text{ of } 24 = 20$$

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

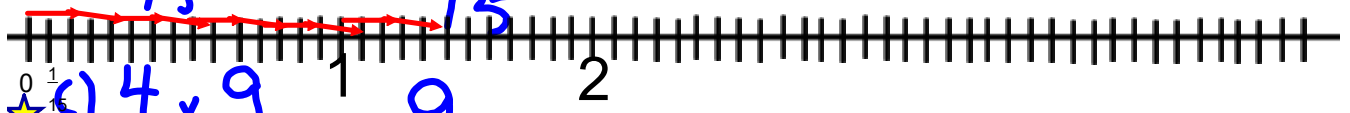
$$f) \frac{5}{12} \text{ of } 24 = 10$$

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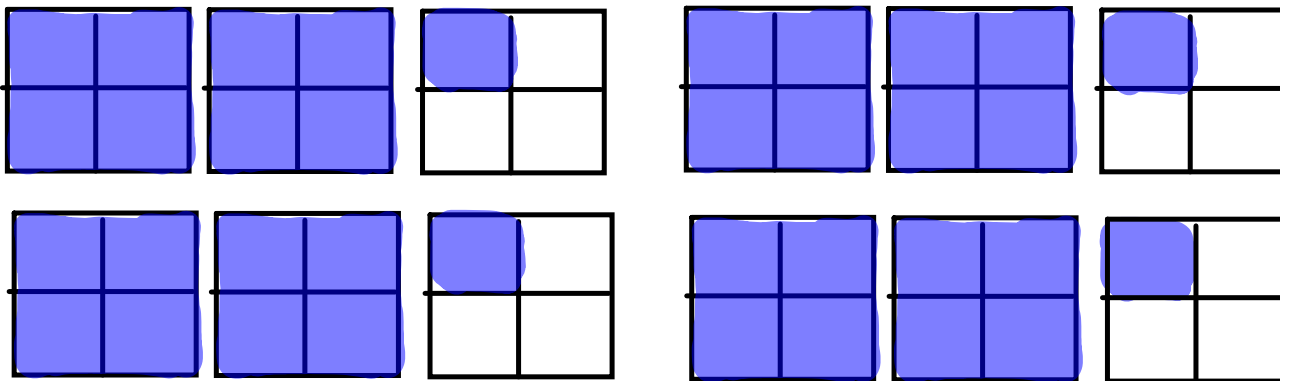
★ $14 \text{ a } 3 \times \frac{4}{7} = \frac{12}{7}$



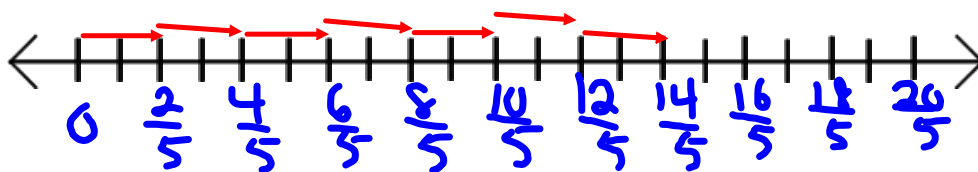
b) $\frac{2}{15} \times 10 = \frac{20}{15}$



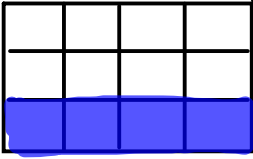
★ $14 \text{ c) } 4 \times \frac{9}{4} = 9$



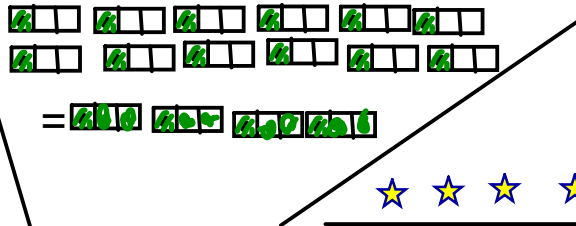
d) $\frac{2}{5} \times 7 = \frac{14}{5}$




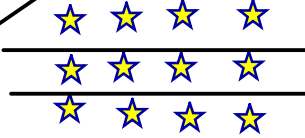
15. ★ or



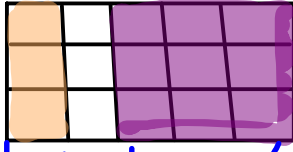
$\frac{1}{3}$ of 12 = 4




= 




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

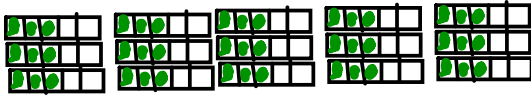


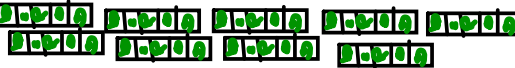
b $\frac{1}{5}$ $\frac{3}{5}$



= 3 = 

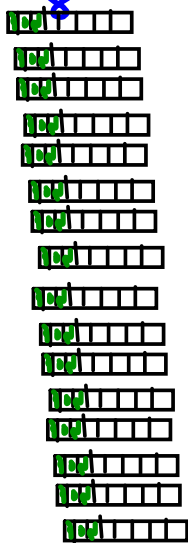
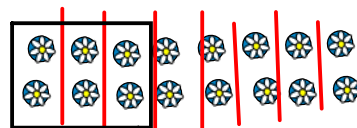
★ c) $\frac{3}{5}$ of 15 = 9



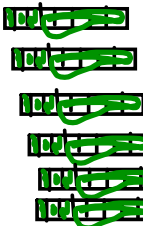
= 

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



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

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

$$\star c) \frac{5}{3} \times 6 = \frac{30}{3} = 10$$

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

$$e) 12 \times \frac{7}{8} = \frac{84}{8}$$

$$\star f) \frac{2}{4} \times 9 = \frac{18}{4}$$

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

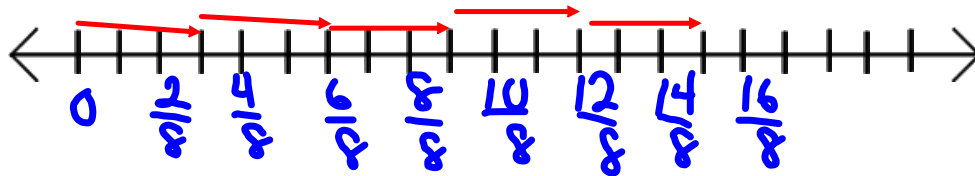
1/3 of 24 is 8

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

$$\frac{1}{3} \times \frac{1}{2} = \frac{1}{6} \quad 1/3 \text{ of } 1/2$$

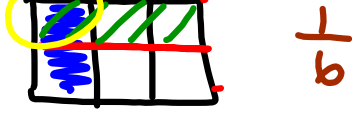
Step 1) Draw a rectangle that is divided into ____ vertically (Denominator of first fraction).

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

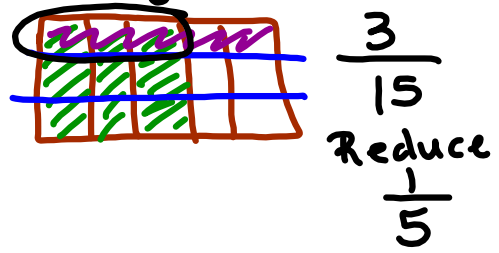
Step 3) Divide Same Rectangle HORIZONTALLY by ____ (Denominator of second fraction)

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

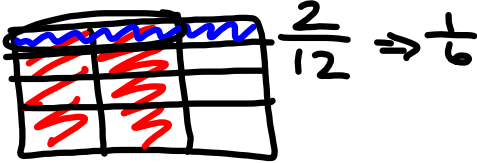
Answer is the OVERLAP



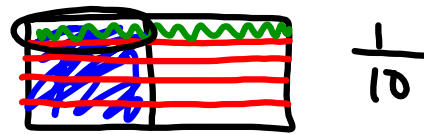
$$\frac{3}{5} \times \frac{1}{3} = \frac{1}{5} \quad \text{Overlap } 3/5 \text{ of } 1/3$$



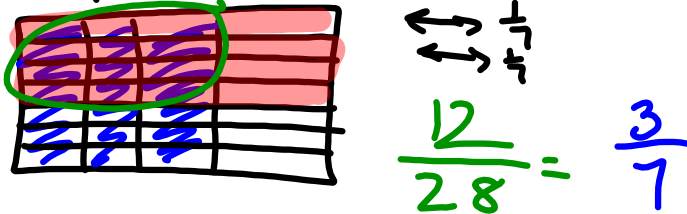
$$\frac{2}{3} \times \frac{1}{4} = \frac{2}{12} \Rightarrow \frac{1}{6} \quad 2/3 \text{ of } 1/4$$



$$\frac{1}{2} \times \frac{1}{5} = \frac{1}{10} \quad 1/2 \text{ of } 1/5$$



$$\frac{3}{4} \times \frac{4}{7} = \frac{12}{28} = \frac{3}{7} \quad 3/4 \text{ of } 4/7$$



1/3 of 5/8

2/5 of 5/6

3/10 of 5/6

$\frac{\text{Top}}{\text{Bot}}$ \rightarrow $\frac{\text{Shade}}{\text{Cut in to}}$

Homework

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

model

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

∴