

Warm Up Grade 8  
Jan. 21, 2020



Multiply and Reduce

$$1) \quad \frac{21}{4} \times \frac{4}{14}$$

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

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

$$\frac{84}{56} = \frac{6}{4} = \frac{3}{2}$$

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

Change to improper

$$= \frac{8}{5} \times \frac{7}{3}$$

$$= \frac{56}{15}$$

$$= 3 \frac{11}{15}$$

Homework pg. 113 # 13ab and pg. 118 # 6-12 omit 10

pg 113

10. a)  $\frac{3}{5} \times \frac{1}{2} = \frac{3}{10}$

b)  $\frac{6}{8} \times \frac{1}{3} = \frac{6}{24}$

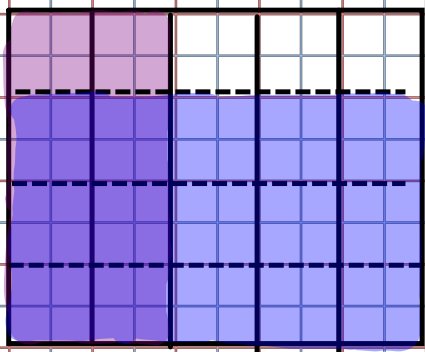
c)  $\frac{1}{3} \times \frac{4}{3} = \frac{4}{9}$   
 $\frac{4}{5} \times \frac{2}{3} = \frac{8}{15}$   
 $\frac{1}{2} \times \frac{3}{5} = \frac{3}{10}$

11.  $\frac{5}{12} \times \frac{5}{12} = \frac{25}{144}$   
 $\frac{5}{12} \times \frac{5}{12} = \frac{25}{144}$   
 $\frac{5}{12} \times \frac{5}{12} = \frac{25}{144}$   
 $\frac{5}{12} \times \frac{5}{12} = \frac{25}{144}$

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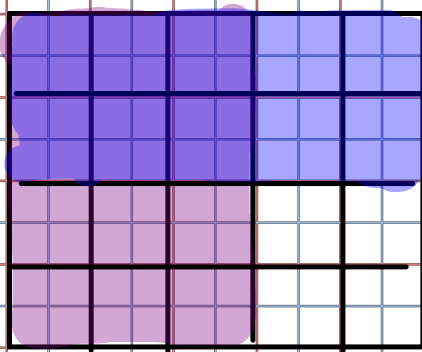
Homework pg. 113 # 13ab and pg. 118 # 6-12 omit 10

12a)  $\frac{3}{4} \times \frac{2}{5}$



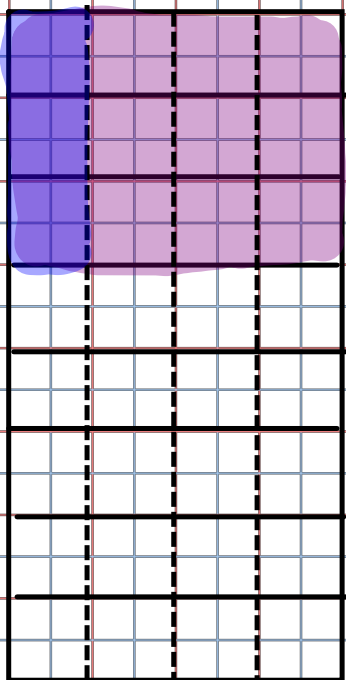
$= \frac{6}{20}$

12b)  $\frac{2}{4} \times \frac{3}{5}$

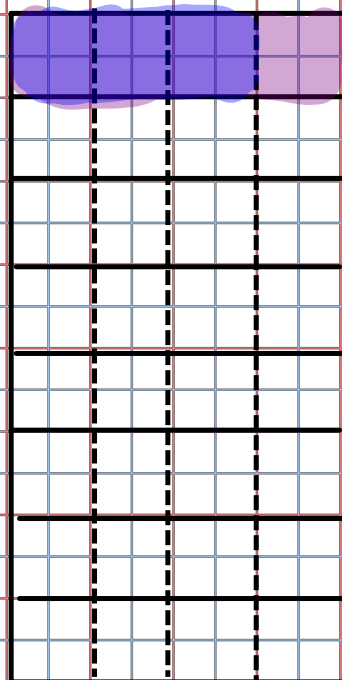


$= \frac{6}{20}$

12c)  $\frac{1}{4} \times \frac{3}{8}$



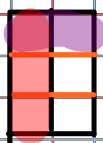
12d)  $\frac{3}{4} \times \frac{1}{8}$



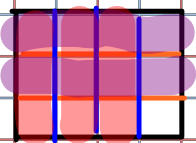
Homework pg. 113 #13ab and pg. 118 # 6-12 omit.10

Models

a)  $\frac{1}{3}$  of  $\frac{1}{2} = \frac{1}{6}$



b)  $\frac{3}{4}$  of  $\frac{2}{3} = \frac{6}{12}$   
or  $\frac{1}{2}$



c)  $\frac{1}{4}$  of  $\frac{2}{5} = \frac{2}{20}$   
or  $\frac{1}{10}$

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Homework pg. 113 # 13ab and pg. 118 # 6-12 omit 10

6.  $\frac{3}{10}$  of  $\frac{5}{8}$

$$\frac{3}{10} \times \frac{5}{8} = \frac{15}{80}$$

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

"cancelling"

$$\frac{\cancel{3}^1 \times \cancel{5}^1}{\cancel{10}^2 \times 8} = \frac{3}{16}$$

a)  $\frac{3}{4} \times \frac{8}{5} = \frac{24}{20}$

$$= \frac{6}{5}$$

$$\frac{\cancel{3}^1 \times \cancel{8}^2}{\cancel{4}^1 \times 5} = \frac{6}{5}$$

b)  $\frac{1}{3} \times \frac{9}{10} = \frac{9}{30}$

$$= \frac{3}{10}$$

$$\frac{\cancel{1}^1 \times \cancel{9}^3}{\cancel{3}^1 \times 10} = \frac{3}{10}$$

c)  $\frac{7}{5} \times \frac{15}{21} = \frac{105}{105}$

$$= 1$$

$$\frac{\cancel{7}^1 \times \cancel{15}^3}{\cancel{5}^1 \times \cancel{21}^3} = \frac{1}{1}$$

d)  $\frac{5}{9} \times \frac{3}{5} = \frac{15}{45}$

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

$$\frac{\cancel{5}^1 \times \cancel{3}^1}{\cancel{9}^3 \times \cancel{5}^1} = \frac{1}{3}$$

e)  $\frac{2}{9} \times \frac{15}{4} = \frac{30}{36}$

$$= \frac{5}{6}$$

$$\frac{\cancel{2}^1 \times \cancel{15}^3}{\cancel{9}^3 \times \cancel{4}^2} = \frac{5}{6}$$

f)  $\frac{7}{3} \times \frac{9}{14} = \frac{63}{42}$

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

$$\frac{\cancel{7}^1 \times \cancel{9}^3}{\cancel{3}^3 \times \cancel{14}^2} = \frac{3}{2}$$

Homework pg. 113 # 13ab and pg. 118 # 6-12 omit 10

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

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

$$\frac{\cancel{3}}{5} \times \frac{2}{\cancel{3}_1} = \frac{2}{5}$$

$$b) \frac{1}{2} \times \frac{5}{10} = \frac{5}{20}$$

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

$$\frac{1}{2} \times \frac{\cancel{5}}{\cancel{10}_2} = \frac{1}{4}$$

$$c) \frac{1}{6} \times \frac{1}{4} = \frac{1}{24}$$

$$d) \frac{13}{8} \times \frac{3}{2} = \frac{39}{16}$$

$$e) \frac{5}{4} \times \frac{11}{10} = \frac{55}{40}$$

$$= \frac{11}{8}$$

$$\frac{\cancel{5}}{4} \times \frac{11}{\cancel{10}_2} = \frac{11}{8}$$

$$f) \frac{7}{3} \times \frac{7}{8} = \frac{49}{24}$$

9. a)  $\frac{1}{4}$  of  $\frac{3}{8}$  Homework pg. 113 # 13ab and pg. 118 # 6-12 omit 10

$$\frac{1}{4} \times \frac{3}{8} = \frac{3}{32}$$

of savings  
Spent on cost

b) Gervais ate  $\frac{1}{3}$   
Chantel ate  $\frac{1}{4}$  of what was left.  $\frac{2}{3} - \frac{1}{3} = \frac{2}{3}$

How much was left?

Chantel

$$\frac{1}{4} \text{ of } \frac{2}{3} = \frac{2}{12}$$

or  $\frac{1}{6}$

10.  $\frac{7}{8} \times \frac{1}{2}$  or  $\frac{1}{2}$  of  $\frac{7}{8}$ .

There  $\frac{7}{8}$  of a choc. bar on the table. Sue ate  $\frac{1}{2}$  of it. How much do Sue eat?

$$\frac{1}{2} \times \frac{7}{8} = \frac{7}{16}$$

11. Spent  $\frac{5}{6}$  of  $\frac{3}{4}$

$$\frac{5}{6} \times \frac{3}{4} = \frac{15}{24}$$

spent

$$= \frac{5}{8}$$

$$1 - \frac{5}{8} = \frac{3}{8} \text{ of allowance left.}$$

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

$$\star b) \frac{1}{5} \times \frac{5}{1} = \frac{5}{5} = 1$$

$$\star c) \frac{7}{2} \times \frac{2}{7} = \frac{14}{14} = 1$$

$$\star d) \frac{5}{6} \times \frac{6}{5} = \frac{30}{30} = 1$$

Fraction  $\times$  Reciprocal = 1  
(Flipped)



Reciprocals: when numerator and denominator are flipped

' Fraction  $\times$  its reciprocal = 1 "

$$i) \frac{3}{4} \times \frac{4}{3} = \frac{12}{12} = 1$$

$$ii) \frac{1}{5} \times \frac{5}{1} =$$

$$iii) \frac{7}{2} \times \frac{2}{7} =$$

$$iv) \frac{5}{6} \times \frac{6}{5} =$$

Multiplying by reciprocals will always give the answer 1

## Multiplying Mixed Numbers

\*Always change to IMPROPER

Do we need another...

a)

$$2 \frac{4}{7} \times 4 \frac{1}{5}$$

$$= \frac{18}{7 \div 7} \times \frac{21 \div 7}{5}$$

$$= \frac{18}{1} \times \frac{3}{5}$$

$$= \frac{54}{5}$$

$$= 10 \frac{4}{5}$$

Always Reduce final fraction

2	$\frac{4}{7}$
4	$\frac{16}{7}$
$\frac{1}{5}$	$\frac{4}{35}$

$8 + \frac{16}{7} + \frac{2}{5} + \frac{4}{35}$   
✓ c.d

$$23 \times 42$$

	20	3
40	$20 \times 40$ 800	$40 \times 3$ 120
2	$2 \times 20$ 80	$2 \times 3$ 6

$$\begin{array}{r} 800 \\ 120 \\ 80 \\ 6 \\ \hline 1006 \end{array}$$

## Multiplying Mixed Numbers

it can be done another way but it is more difficult

a)

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

$$= (2 \times 1) + \left(\frac{1}{2} \times 1\right) + \left(2 \times \frac{1}{3}\right) + \left(\frac{1}{2} \times \frac{1}{3}\right)$$

$$= (2) + \underbrace{\left(\frac{1}{2}\right) + \left(\frac{2}{3}\right) + \left(\frac{1}{6}\right)}_{\text{need common denominators}}$$

$$= 2 + \underbrace{\frac{3}{6} + \frac{4}{6} + \frac{1}{6}}$$

$$= 2 + \frac{8}{6}$$

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

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

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

Not going to use this in Grade 8

# Class/Homework

\*Always change to improper first to multiply

Page 120 # 15(a,b,c,d), #16(a)

Page 125 #4(a,b,c), #5(b,h,e), #6(b,h,e),  
#7(Just multiply no estimation), #9

Warm Up Quiz Friday

#1(Model with a rectangular box..grid paper), #2 multiply and reduce(a,b,c)