

Warm Up Grade 8
Feb. 3, 2016



Multiply and Reduce

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

$$\begin{array}{r} 21 \times 4 \\ \hline 14 \times 14 \end{array}$$

Reduce once
(\div both top/bottom by 4)

$$\begin{array}{r} 21 \times 1 \\ \hline 1 \times 14 \end{array}$$

$$\frac{21 \div 7}{14 \div 7}$$

Reduce

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

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

Change to improper

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

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

Option 2

$$\frac{21 \times 4}{4 \times 14}$$

$$= \frac{84 \div 2}{56 \div 2}$$

$$= \frac{42 \div 2}{28 \div 2}$$

$$= \frac{21 \div 7}{14 \div 7}$$

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

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

pg 113

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

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

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

$$d) \frac{4}{5} \times \frac{2}{3} = \frac{8}{15}$$

11.

$$\frac{5}{2} \times \frac{5}{2} = \frac{25}{4}$$

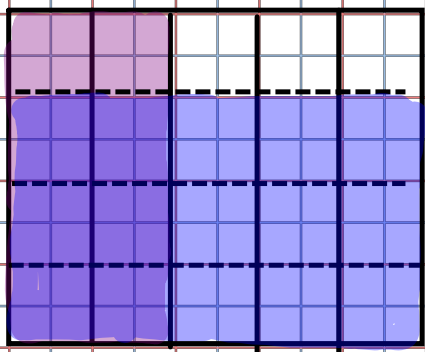
$$e) \frac{5}{8} \times \frac{5}{8} = \frac{25}{64}$$

$$f) \frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$$

pg 114

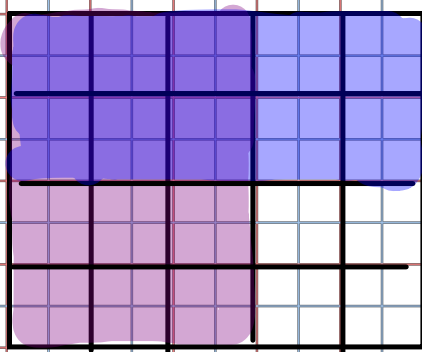
Homework pg. 113 # 13ab and pg. 118 # 6-12 omit 10

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



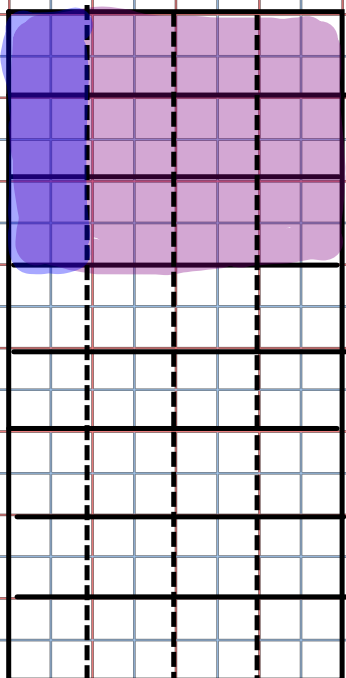
$= \frac{6}{20}$

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

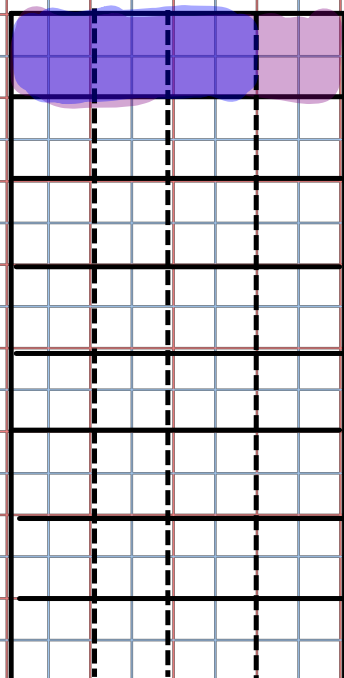


$= \frac{6}{20}$

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



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



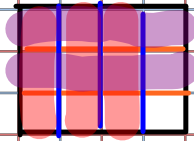
Homework pg. 113 #13ab and pg. 118 # 6-12 omit.10

Models

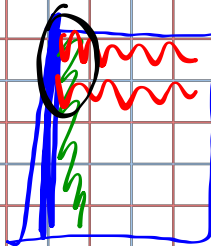
13. a) $\frac{1}{3}$ of $\frac{1}{2} = \frac{1}{6}$



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 $\frac{1}{10}$



pg 118 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"

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

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

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

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

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

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

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

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

$$= 1$$

$$\frac{\overset{2}{\cancel{7}} \times \overset{2}{\cancel{15}}}{\underset{1}{\cancel{5}} \times \underset{3}{\cancel{21}}} = \frac{1}{1}$$

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

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

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

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

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

$$\frac{\overset{2}{\cancel{2}} \times \overset{5}{\cancel{15}}}{\underset{3}{\cancel{9}} \times \underset{2}{\cancel{4}}} = \frac{5}{6}$$

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

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

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

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

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

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

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

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

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

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

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


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

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


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

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

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

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

$$\frac{1}{4} \times \frac{3}{8} = \frac{3}{32} \text{ of savings Spent on cost}$$

b)  Gervais ate $\frac{1}{3}$
 Chantel ate $\frac{1}{4}$ of what was left.
 How much was left? $\frac{2}{3}$


Chantel

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

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 $\frac{3}{4}$

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

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

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

Reciprocals: when numerator and denominator are flipped

$$i) \frac{3}{4} \times \frac{4}{3} = \frac{12}{12} = \frac{1}{1} = 1 \quad ii) \frac{1}{6} \times \frac{6}{1} = \frac{6}{6} = \frac{1}{1} = 1$$

$$iii) \frac{7}{2} \times \frac{2}{7} = \frac{14}{14} = \frac{1}{1} = 1 \quad iv) \frac{5}{6} \times \frac{6}{5} = \frac{30}{30} = \frac{1}{1} = 1$$

Multiplying by reciprocals will always give the answer 1

Multiplying Mixed Numbers

*Always change to IMPROPER

Do we need another...

a)

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

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

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

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

$$\frac{18 \times 21}{7 \times 5} = \frac{378}{35} \div 7$$

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

Multiplying Mixed Numbers

it can be done another way but it is more difficult

a)

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

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

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

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

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

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

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

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

$$23 \times 14$$

$$\begin{array}{r} 20 \quad 3 \\ 10 \quad 20 \times 10 \quad 10 \times 3 \\ 14 \quad 14 \times 20 \quad 14 \times 3 \end{array}$$

$$\begin{array}{r} 2 \quad \frac{1}{2} \\ 1 \quad 2 \times 1 \quad 1 \times \frac{1}{2} \\ \frac{1}{3} \quad 2 \times \frac{1}{3} \quad \frac{1}{3} \times \frac{1}{2} \end{array}$$

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)