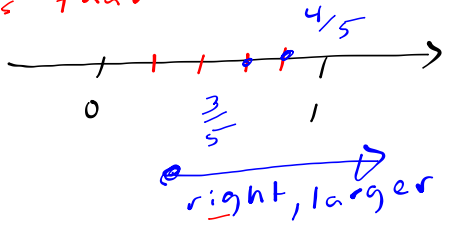


Lesson 6 : Comparing Two Fractions Oct 11, 2022  
 and Multiplying Fractions

A matter of comparing apples w apples!

e.x.  $\frac{4}{5} > \frac{3}{5}$

- proper fractions
- less than one



Recall : Be careful w negative #'s.

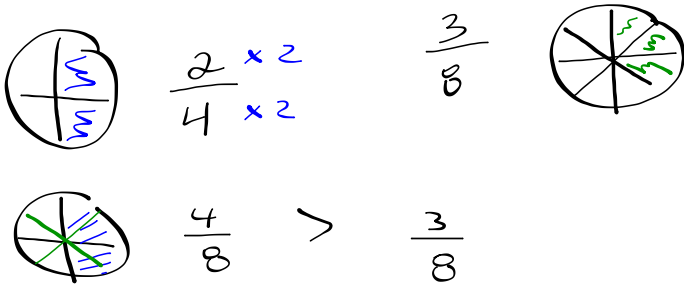
e.x.  $-\frac{5}{6} < -\frac{2}{6}$



Examples: Apples w Oranges . No good!  
 . A problem

A well defined problem  
 is half-solved!

e.x. compare



$$\frac{2}{4} \times 2 = \frac{4}{8}$$

$$\frac{4}{8} > \frac{3}{8}$$

↓  
 . cuz not same denominator!  
 . get the same / common denominator!

step i: check if you can simplify

step ii: get common denominator by using steps in LS.  
 CD = 8

ex: compare

$$-\frac{4}{5} \quad -\frac{1}{3}$$

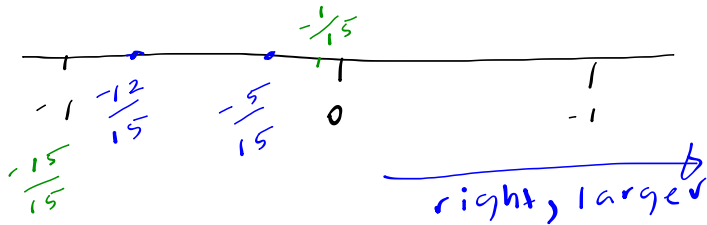
$$-\frac{4 \times 3}{5 \times 3} \quad -\frac{1 \times 5}{3 \times 5}$$

$$-\frac{12}{15} < -\frac{5}{15}$$

$$5 \times 1 = 5$$

$$5 \times 2 = 10$$

$$5 \times 3 = \boxed{15} = CD$$



You do: pg 6.9

# 3 a), e), d), h)  
 try

Example:  $-2 \frac{2}{3} \times 2$ : Converting a Negative Mixed # to Improper Fraction

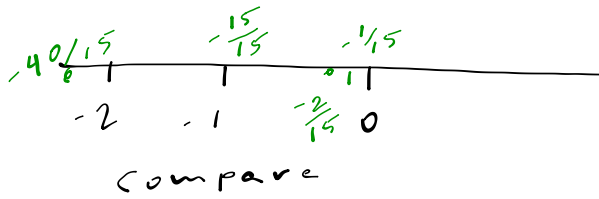
ex. Compare

$$-2 \frac{2}{3} \quad -\frac{2}{15}$$

$$-\frac{8 \times 5}{3 \times 5} \quad -\frac{2}{15}$$

$$-\frac{40}{15} < -\frac{2}{15}$$

improper



Convert to improper fraction: leave - outside bracket

$$-2 \frac{2}{3} \rightarrow -\left(2 \frac{2}{3}\right) \rightarrow -\left(2 \text{ and } \frac{2}{3}\right)$$

(6) + 2 = 8  
convert

proper  $-\left(\frac{8}{3}\right)$

$-\frac{8}{3}$  → equivalent same but different form.

ex.  $4 \quad \frac{5}{2}$

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

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

$$\frac{8}{2} > \frac{5}{2}$$

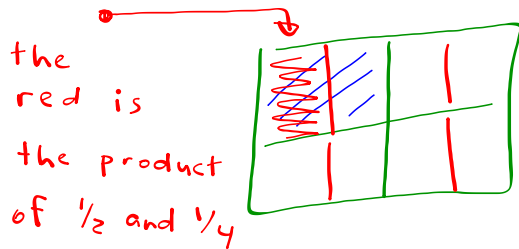
contains an integers (but all integers have denominator of 1)

You do:  
p 6.9 # 3  
d), c), j)

(product) (NOT same as cross multiply)  
Understanding the Multiplication  
of Fractions

example:

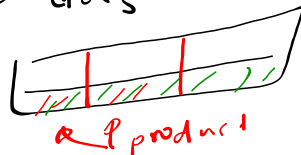
$\frac{1}{2}$   $\times$   $\frac{1}{4}$  (piece of land)  
One half of a quarter of the lot  
 multiplier of multiplier multiplier  
 is taken up by the house. multiplier  
 What's the whole/unit of reference? \_\_\_\_\_



e.g. Hazel has half a pizza. Pia take half of her half of pizza.  
 How much does Pia have?

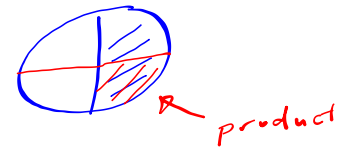
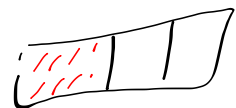
$$\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$$

e.g. Mo has half a chocolate bar. Sabrina takes  $\frac{2}{3}$  of his half.  
 How much chocolate does she have?



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

$\frac{1}{3}$  (simplified)



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

# Multiplying Fractions

(sometimes)  
long way, but correct

$$\frac{2}{5} \times \frac{12}{2} \times \frac{7}{8}$$

step i  
x tops  
x bottoms

$$\frac{2 \times 12 \times 7}{5 \times 2 \times 8}$$

step ii

simplify!

GCD: 4?

$$\frac{168}{80} \div \frac{4}{4}$$

$$\frac{42}{20} \div \frac{2}{2}$$

$$\frac{21}{10}$$

short way, not dangerous

$$\frac{2}{5} \times \frac{12}{2} \times \frac{7}{8}$$

step i  
x tops  
x bottoms

$$\frac{\cancel{2} \times 12 \times 7}{5 \times \cancel{2} \times 8}$$

step ii

cancel out same tops and bottoms

$$\frac{3 \times 7}{5 \times 2}$$

step iii  
cancel out same divisors in top and bottom

$$\frac{21}{10}$$

$$\begin{array}{l} 1 \quad 12 \\ 2 \quad 6 \\ 3 \quad 4 \end{array} \quad \begin{array}{l} 1 \quad 3 \\ 2 \quad 4 \end{array} \left. \vphantom{\begin{array}{l} 1 \quad 12 \\ 2 \quad 6 \\ 3 \quad 4 \end{array}} \right\} \text{and divide}$$

irreducible equivalent to  $\frac{168}{80}$