

Lesson 4: Converting Mixed Numbers  
to Improper Fractions.  
(and vice versa) Oct. 5<sup>th</sup>, 2022

Recall:

Define or Give example:

→ Mixed Number:  $\neq$   $\bar{w}$  integer and fraction  
"2 and  $\frac{1}{2}$ "  
 $2 \frac{1}{2}$

→ Improper Fraction: ex:  $\frac{5}{2}$   
where top is larger  
than bottom.

→ Equivalent Numbers:

→ same value  
but different form ex.  $2 \frac{1}{2} = \frac{5}{2}$

# Visualizing (Improper) Fractions

e.x. Visually represent :

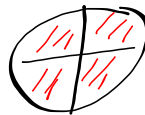
a)  $\frac{2}{3}$  ← the part you have  
 ← whole broken up



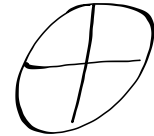
b)  $\frac{3}{4}$



c)  $\frac{4}{4}$



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



e)  $\frac{8}{4}$



f)  $\frac{10}{4} = 2.5$



20 \$ CAD = 16 \$ US

converting:

↳ keeping value but changing forms.

2 and  $\frac{2}{4}$

$2 \frac{2}{4} \div \frac{2}{2}$

$2 \frac{1}{2}$

Converting Improper Fractions to mixed #

→ a question of long division

e.x. convert to mixed #

$$\frac{13}{4}$$

step i. Do long division:

$$\frac{a}{b} \Rightarrow b \overline{)a}$$

$$4 \overline{)13}$$
  

$$\underline{-12}$$
  

$$1$$

quotient / integer  
 denominator  
 remainder (R)  
 numerator

How many times does 4 evenly go into 13?  
 How many 4's are in 13?

step ii. Write mixed #

$$(int) \frac{(num)}{(den)}$$

step iii. If possible, put fractional part in lowest terms

$$3 \frac{1}{4}$$

e.x. Convert to mixed #

$$\frac{10}{4}$$



$$4 \overline{)10}$$
  

$$\underline{-8}$$
  

$$2$$

d →  
 i  
 n →

$$2 \frac{2}{4}$$

$2 \frac{2}{4}$  } even #'s so 2 is C.D.

$$2 \frac{2}{4} \xrightarrow{\div 2} 2 \frac{1}{2} = \frac{10}{4}$$

1. Convert the improper fractions below to mixed numbers, following the four steps listed previously.

a)  $\frac{14}{3}$

$$3 \overline{)14}$$
  

$$\underline{-12}$$
  

$$2$$

quotient  
 remainder  
 4 remainder 2  
 4 R 2  
 4

1. Divide the numerator by the denominator: .....
2. Take the quotient as the integer: .....
3. Take the remainder as the numerator of the fraction and keep the same denominator as in the improper fraction: .....
4. Result: .....

$$4 \frac{2}{3}$$

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

you do 4.4/4.5

## Visualizing Mixed Numbers

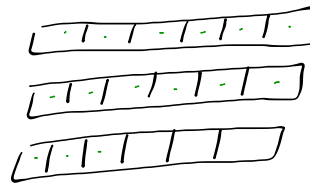
integral  
part ↓  
ex

Fractional  
part

$2 \frac{3}{6}$ , this reads,  
two and three sixths

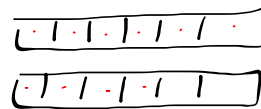
→ make a drawing:

a)  $2 \frac{3}{6}$



$2 \frac{3}{6} = \frac{15}{6}$

b)  $1 \frac{4}{6}$



$\frac{10}{6}$

c)  $3 \frac{3}{5}$

Bonus: Find improper  
fraction

## Converting Mixed # to Improper Fractions

ex. convert to fraction

$$2 \frac{3}{6} \overset{\text{0/0}}{\cancel{3}} \overset{\text{0/0}}{\cancel{3}}$$

(4)

$$\begin{array}{r} + \\ \rightarrow \\ 2 \cancel{2} \frac{1}{2} \\ \times \end{array}$$

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

step i. simplify fractional part

step ii. Find the new numerator.  
2nd w product

$$\begin{array}{r} + \\ \rightarrow \\ a \cancel{b} \\ \times \\ c \end{array}$$

step iii. Denominator is same as the simplified one.

ex. convert to fraction

$$1 \frac{4}{6} \overset{\text{0/0}}{\cancel{2}} \overset{\text{0/0}}{\cancel{2}}$$

(3)

$$\begin{array}{r} + \\ \rightarrow \\ 1 \cancel{2} \frac{2}{3} \\ \times \end{array}$$

$$\frac{5}{3}$$

ex.

(15)

$$\begin{array}{r} + \\ \rightarrow \\ 3 \cancel{3} \frac{3}{5} \\ \times \end{array}$$

irreducible cuz prime #s

$$\frac{18}{5}$$