

## Warm Up Grade 8

Nov. 15, 2022

1) Put the following fraction in order from greatest to least.

$$\begin{array}{ccccccc}
 4 \cdot 7 & 3 & 1 & 5 & 7 & 7 & ? \\
 \hline
 4 \cdot 9 & 4 & 2 & 6 & 12 & ? & \\
 \hline
 28 & 27 & 18 & 30 & 21 & & \\
 \hline
 \frac{28}{36} & & \frac{27}{36} & & \frac{18}{36} & & \frac{30}{36} & & \frac{21}{36}
 \end{array}$$

12, 24, 36

$$\frac{5}{6}, \frac{7}{9}, \frac{3}{4}, \frac{7}{12}, \frac{1}{2}$$

2) Find 3 equivalent fractions to  $\frac{7}{8}$

$$\frac{7 \cdot 2}{8 \cdot 2} = \frac{14}{16}$$

$$\frac{7 \cdot 3}{8 \cdot 3} = \frac{21}{24}$$

$$\frac{7 \cdot 4}{8 \cdot 4} = \frac{28}{32}$$

3) what is  $\frac{18}{20}$  as a decimal?

$$\begin{array}{l}
 \frac{18}{20} \div 2 = \frac{9}{10} = 0.\frac{9}{10} \\
 \text{tenth}
 \end{array}$$

4) Reduce  $\frac{36}{90}$

$$\frac{36 \div 18}{90 \div 18}$$

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

OR

$$\frac{18 \div 3}{45 \div 3}$$

$$\frac{6 \div 3}{15 \div 3}$$

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

### Warm Up Grade 8

1) Put the following fraction in order from greatest to least.

$$\frac{7}{9}, \frac{3}{4}, \frac{1}{2}, \frac{5}{6}, \frac{7}{12}$$

$$\frac{28}{36}, \frac{27}{36}, \frac{18}{36}, \frac{30}{36}, \frac{21}{36}$$

$$\frac{5}{6}, \frac{7}{9}, \frac{3}{4}, \frac{7}{12}, \frac{1}{2}$$

2) Find 3 equivalent fractions to  $\frac{7}{8}$

$$\frac{7}{8} \times \frac{2}{2} = \frac{14}{16}$$

$$\frac{7}{8} \times \frac{3}{3} = \frac{21}{24}$$

$$\frac{7}{8} \times \frac{4}{4} = \frac{28}{32}$$

3) what is 18 as a decimal?

$$\frac{18}{20} \xrightarrow{\times 5} \frac{90}{100} = 0.90$$

$$\frac{18 \div 2}{20 \div 2} = \frac{9}{10} = 0.9$$

4) Reduce  $\frac{36}{90}$

90

$$\frac{36 \div 3}{90 \div 3} = \frac{12 \div 2}{30 \div 2} = \frac{6 \div 3}{15 \div 3} = \frac{2}{5}$$

$$\frac{36 \div 18}{90 \div 18} = \frac{2}{5}$$

Grade 8 Unit 3: Fraction Day 1

Homework

Sheet 137

Solutions

1) For each fraction, write an equivalent fraction with denominator 10, 100, or 1000. Then, write the fraction as a decimal.

$$\text{a) } \frac{4}{5} \stackrel{\times 2}{=} \frac{8}{10} = 0.8$$

$$\text{b) } \frac{3}{50} \stackrel{\times 2}{=} \frac{6}{100} = 0.06$$

$$\text{c) } \frac{7}{20} \stackrel{\times 5}{=} \frac{35}{100} = 0.35$$

$$\text{d) } \frac{19}{200} \stackrel{\times 5}{=} \frac{95}{1000} = 0.095$$

2) Use Equivalent Fractions to order the fractions from least to greatest

$$\begin{array}{ccccc} \frac{2}{3} & , & \frac{1}{2} & , & \frac{7}{24} & , & \frac{1}{12} & , & \frac{11}{12} \\ \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow \\ \frac{16}{24} & & \frac{12}{24} & & \frac{7}{24} & & \frac{2}{24} & & \frac{22}{24} \end{array}$$

The fraction now with the largest numerator is the biggest

↑  
Smallest

$$\frac{1}{12}, \frac{7}{24}, \frac{1}{2}, \frac{2}{3}, \frac{11}{12}$$

Sheet 137

Homework  
Solutions

3 a)  $\frac{2^{2 \times 3}}{3^{3 \times 3}} = \frac{6}{9}$

b)  $\frac{3^{2 \times 4}}{4^{2 \times 4}} = \frac{12}{16}$

c)  $\frac{12 \div 2}{10 \div 2} = \frac{6}{5}$

d)  $\frac{30 \div 2}{40 \div 2} = \frac{15}{20}$

e)  $\frac{5}{5} = \frac{15}{15}$

f)  $\frac{15 \div 5}{10 \div 5} = \frac{3}{2}$

4 a)  $\frac{1}{2}$   $\frac{1 \times 2}{2 \times 2} = \frac{2}{4}$ ,  $\frac{1 \times 4}{2 \times 4} = \frac{4}{8}$ ,  $\frac{1 \times 5}{2 \times 5} = \frac{5}{10}$

b)  $\frac{3}{4}$   $\frac{3 \times 2}{4 \times 2} = \frac{6}{8}$ ,  $\frac{3 \times 25}{4 \times 25} = \frac{75}{100}$ ,  $\frac{3 \times 4}{4 \times 4} = \frac{12}{16}$

c)  $\frac{7}{5}$   $\frac{7 \times 2}{5 \times 2} = \frac{14}{10}$ ,  $\frac{7 \times 4}{5 \times 4} = \frac{28}{20}$ ,  $\frac{7 \times 5}{5 \times 5} = \frac{35}{25}$

d)  $\frac{1}{3}$   $\frac{1 \times 2}{3 \times 2} = \frac{2}{6}$ ,  $\frac{1 \times 5}{3 \times 5} = \frac{5}{15}$ ,  $\frac{1 \times 6}{3 \times 6} = \frac{6}{18}$

e)  $\frac{3}{10}$   $\frac{3}{30}$ ,  $\frac{6}{20}$ ,  $\frac{30}{100}$

f)  $\frac{4}{1}$   $\frac{8}{2}$ ,  $\frac{24}{6}$ ,  $\frac{12}{3}$

g)  $\frac{2}{5}$   $\frac{4}{10}$ ,  $\frac{6}{15}$ ,  $\frac{8}{20}$

h)  $\frac{4}{3}$   $\frac{8}{6}$ ,  $\frac{12}{9}$ ,  $\frac{16}{12}$

$$\frac{7}{21} = \frac{\boxed{1}}{3}$$

Handwritten diagram showing the simplification of the fraction  $\frac{7}{21}$  to  $\frac{1}{3}$ . A red arrow points from the numerator 7 to the denominator 3, labeled with  $\div 7$ . Another red arrow points from the denominator 21 to the numerator 1, also labeled with  $\div 7$ . The final fraction  $\frac{1}{3}$  has the numerator 1 enclosed in a green box.

$$\frac{\boxed{6}}{8} = \frac{18}{24}$$

Handwritten diagram showing the simplification of the fraction  $\frac{6}{8}$  to  $\frac{18}{24}$ . A blue arrow points from the numerator 6 to the denominator 24, labeled with  $\div 3$ . Another blue arrow points from the denominator 8 to the numerator 18, also labeled with  $\div 3$ . The final fraction  $\frac{18}{24}$  has the numerator 18 enclosed in a red box.

## 5. Lowest terms

Homework

Solutions

$$a) \frac{3}{12} \begin{array}{l} \div 3 \\ \div 3 \end{array} = \frac{1}{4}$$

$$b) \frac{8}{20} \begin{array}{l} \div 4 \\ \div 4 \end{array} = \frac{2}{5}$$

$$c) \frac{6}{16} \begin{array}{l} \div 2 \\ \div 2 \end{array} = \frac{3}{8}$$

$$d) \frac{12}{64} \begin{array}{l} \div 4 \\ \div 4 \end{array} = \frac{3}{16}$$

$$e) \frac{24}{80} \begin{array}{l} \div 2 \\ \div 2 \end{array} = \frac{12}{40} \begin{array}{l} \div 2 \\ \div 2 \end{array}$$

$$\begin{array}{l} \frac{12}{64} \begin{array}{l} \div 2 \\ \div 2 \end{array} \\ \frac{6}{32} \begin{array}{l} \div 2 \\ \div 2 \end{array} \\ \frac{3}{16} \end{array} \quad \text{or} \quad \frac{24 \div 8}{80 \div 8} = \frac{3}{10}$$

$$f) \frac{15}{48} \begin{array}{l} \div 3 \\ \div 3 \end{array} = \frac{5}{16}$$

$$g) \frac{10}{5} \begin{array}{l} \div 5 \\ \div 5 \end{array} = \frac{2}{1}$$

$$h) \frac{75}{100} \begin{array}{l} \div 5 \\ \div 5 \end{array} = \frac{15}{20} \begin{array}{l} \div 5 \\ \div 5 \end{array} = \frac{3}{4}$$

$$\frac{75}{100} \div 5 = \frac{15}{20} \div 5 = \frac{3}{4}$$

Homework  
Solutions

$$\frac{48}{60} \div 2 = \frac{24}{30} \div 6 = \frac{4}{5}$$

$$\frac{48}{60} \div 12 = \frac{4}{5}$$

b. 32 students , 12 do not like pizza  
so 20 like pizza

Fraction  $\frac{20}{32} \begin{matrix} \div 4 \\ \div 4 \end{matrix} = \frac{5}{8}$

Homework  
Solutions

1. a) 4 eggs as a fraction  
of a dozen

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

b) 15 min as a fraction  
of an hour

$$\frac{15}{60} = \frac{1}{4}$$

c) 25¢ as a fraction  
of a dollar

$$\frac{25}{100} = \frac{5}{20} = \frac{1}{4}$$



Homework  
Solutions

8a)  $\frac{5}{8} = \frac{20}{32}$

b)  $\frac{9}{16} = \frac{36}{64}$

c)  $\frac{1}{2} = \frac{15}{30}$

d)  $\frac{3}{4} = \frac{9}{12}$

e)  $\frac{1}{9} = \frac{21}{27}$

f)  $\frac{20}{24} = \frac{5}{6}$

g)  $\frac{3}{9} = \frac{12}{36}$

h)  $\frac{7}{8} = \frac{42}{48}$

i)  $\frac{2}{3} = \frac{10}{15}$

j)  $\frac{6}{8} = \frac{12}{16}$

k)  $\frac{5}{100} = \frac{1}{20}$

l)  $\frac{45}{300} = \frac{15}{100}$

m)  $\frac{2}{1} = \frac{32}{16}$

n)  $\frac{8}{4} = \frac{4}{2}$

o)  $\frac{5}{6} = \frac{20}{24}$

p)  $\frac{1}{2} = \frac{10}{20}$

q)  $\frac{6}{6} = \frac{36}{36}$

r)  $\frac{3}{40} = \frac{15}{200}$

s)  $\frac{3}{8} = \frac{30}{80}$

t)  $\frac{4}{16} = \frac{2}{8}$

u)  $\frac{7}{1} = \frac{21}{3}$

v)  $\frac{8}{14} = \frac{48}{84}$

w)  $\frac{5}{50} = \frac{10}{100}$

x)  $\frac{2}{21} = \frac{6}{63}$

GREAT! YOU FIGURED IT OUT.

Lisette and Kim are the same height.  
 Lisette can jump  $\frac{2}{3}$  of her height and  
 Kim,  $\frac{3}{4}$  of her height. Who can jump higher?

Number lines can be used to compare  $\frac{2}{3}$  and  $\frac{3}{4}$ .

$\frac{3}{4}$  is to the right of  $\frac{2}{3}$ .  $\frac{3}{4} > \frac{2}{3}$

Fractions can also be compared if they have the same denominator.  
 For  $\frac{3}{4}$  and  $\frac{2}{3}$ , the LCM of the denominators is 12.  
 The LCM is used to write equivalent fractions.

$\frac{9}{12} > \frac{8}{12}$ , therefore  $\frac{3}{4} > \frac{2}{3}$ .

Kim can jump higher.

# Solutions

## You Try

1. Which is greater,  $\frac{4}{5}$  or  $\frac{5}{7}$ ?

2. Find the LCM of the denominators (the least common denominator).

a.  $\frac{2}{3}, \frac{1}{7}$     21    b.  $\frac{2}{5}, \frac{1}{2}$     10  
 c.  $\frac{1}{9}, \frac{1}{6}$     18    d.  $\frac{3}{4}, \frac{1}{5}$     12

3. Copy and use > or < to make a true statement.

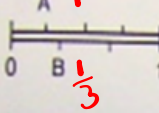
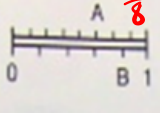
a.  $\frac{3}{5} > \frac{2}{5}$     b.  $\frac{7}{10} < \frac{9}{10}$     c.  $\frac{1}{5} < \frac{3}{10}$   
 d.  $\frac{5}{8} < \frac{3}{4}$     e.  $\frac{1}{4} < \frac{1}{3}$     f.  $\frac{3}{5} > \frac{7}{10}$

4. Arrange from least to greatest.

a.  $\frac{3}{10}, \frac{1}{10}, \frac{9}{10}, \frac{7}{10}$     b.  $\frac{7}{9}, \frac{18}{18}, \frac{4}{9}, \frac{11}{18}, \frac{1}{18}$   
 c.  $\frac{1}{4}, \frac{2}{3}, \frac{1}{12}$     d.  $\frac{2}{3}, \frac{3}{4}, \frac{1}{2}, \frac{5}{6}$   
 e.  $\frac{11}{10}, \frac{6}{5}, \frac{9}{5}$


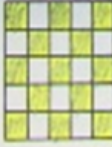
c)  $\frac{3}{12}, \frac{8}{12}, \frac{1}{12}$   
 $\frac{1}{12}, \frac{1}{4}, \frac{2}{3}$

a)  $\frac{1}{10}, \frac{3}{10}, \frac{7}{10}, \frac{9}{10}$   
 b)  $\frac{1}{18}, \frac{11}{18}, \frac{7}{9}, \frac{4}{9}, \frac{18}{18}$

1. What fractions do A and B represent?  
 a.  b. 

2. Which is the lesser fraction in each part of exercise 1?  
 a.  $\frac{1}{4} < \frac{1}{3}$

3. Which is the greater fraction?  
 a.  $\frac{4}{12} < \frac{5}{12}$  b.  $\frac{3}{4} > \frac{5}{8}$  c.  $\frac{12}{5} > \frac{9}{4}$   
 d.  $\frac{7}{8} > \frac{3}{4}$  e.  $\frac{15}{10} < \frac{15}{8}$  f.  $\frac{2}{3} < \frac{7}{10}$

4. Which figure has the greater fraction of its area shaded?  
 a.  b. 

5. Renata and Bonnie have the same mass. Renata can lift  $\frac{4}{5}$  of her mass. Bonnie can lift  $\frac{3}{4}$  of her mass. Who can lift the greater mass?  
 $\frac{4}{5} > \frac{3}{4}$   
 $0.8 > 0.75$

6. Find the LCM of the denominators.  
 a.  $\frac{1}{2}, \frac{4}{5}, \frac{9}{10}$  b.  $\frac{7}{8}, \frac{1}{3}, \frac{5}{4}$  c.  $\frac{7}{6}, \frac{3}{8}, \frac{5}{3}$   
 10, 24, 18

7. Which is the least fraction?  
 a.  $\frac{2}{3}, \frac{5}{6}, \frac{3}{4}$  b.  $\frac{7}{8}, \frac{4}{5}, \frac{9}{10}$  c.  $\frac{7}{4}, \frac{11}{7}, \frac{3}{2}$

8. Arrange from least to greatest.  
 a.  $\frac{3}{4}, \frac{8}{4}, \frac{5}{4}$  b.  $\frac{1}{3}, \frac{2}{5}, \frac{1}{10}$   
 c.  $\frac{8}{5}, \frac{9}{5}, \frac{5}{5}$  d.  $\frac{9}{4}, \frac{7}{2}, 2$

9. Of the 30 students in Mrs. Paolucci's class, 3 were absent. On the same day, 2 students were absent from Mr. Clark's class of 25. Which class had the greater fraction of students present?  
 $\frac{3}{30} = \frac{1}{10} = 0.10$   
 10% Absent  
 So 90% present  
 $\frac{2}{25} = \frac{8}{100} = 8\%$   
 8% absent  
 92% present  
 Greater present Mr. C

10. A construction company is building Phase II of a housing development. Of the 30 homes in Phase I, 11 have three bedrooms. In Phase II, 17 of the 45 homes have three bedrooms. Which phase has the greater fraction of three-bedroom homes?  
 $\frac{11}{30} < \frac{17}{45}$   
 $\frac{33}{90} < \frac{34}{90}$   
 Phase II

11. While playing golf, Neil lost 3 of his 10 golf balls. Gabrielle lost 6 of her 15 golf balls. Which player lost the lesser fraction of golf balls?  
 $\frac{3}{10} < \frac{6}{15}$   
 $\frac{9}{30} < \frac{12}{30}$   
 Neil

12. The Yost family spent \$72 of their \$264 weekly income on food. The Seymours spent \$93 of their \$330 weekly income on food.  
 a. How much did each family spend on food in a year?  
 Yost:  $72 \times 52 = 3600$   
 Seymours:  $93 \times 52 = 4836$   
 b. Which family spent the greater fraction of their income on food?  
 $\frac{72}{264} = \frac{3}{11}$   
 $\frac{93}{330} = \frac{3}{10}$   
 $\frac{3}{10} < \frac{3}{11}$   
 Seymours

Prime factors:  
 $\frac{2}{3}$   
 $\frac{4}{5}$   
 $\frac{13}{4}$   
 $\frac{14}{7}$   
 $\frac{49}{28}$   
 $\frac{44}{28}$   
 $\frac{42}{28}$   
 $\frac{8}{2}$

Seymours  
 $93 \times 52$   
 $\frac{4836}{4836}$

Yost:  $72 \times 52 = 3600$   
 Seymours:  $93 \times 52 = 4836$   
 3744 spent in year

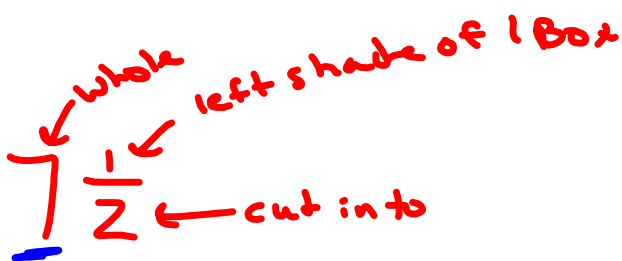
### Mixed Numbers and Improper Fractions

A mixed number contains a whole and a fraction Example:  $8 \frac{1}{3}$  ,  $\frac{25}{7}$

$$7 \frac{1}{2}$$

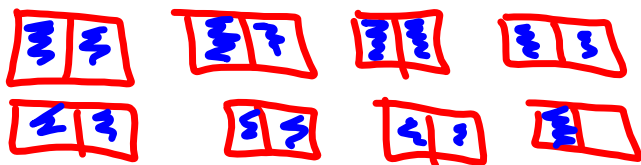
An improper fraction is when the numerator is greater than the denominator

Example:  $\frac{15}{7}$  ,  $\frac{9}{2}$



$$7 \frac{1}{2} = \frac{15}{2}$$

*(Handwritten green annotations: 'add' above the fraction line, and arrows pointing to the 7 and the 15 in the resulting fraction)*



+

+

Homework



Sheet 173 # 1-3,5,6, 10,11

## Mixed Fraction to Improper Fraction

To change a mixed number to an improper fraction, multiply the whole number by the denominator, then add the numerator to your answer. This will give the numerator for the improper fraction, and the denominator always stays the same.

Ex 1)  $8 \frac{1}{3}$  <sup>add</sup>  
 $\times \hookrightarrow 3$   
 $= \frac{25}{3}$

<http://www.youtube.com/watch?v=1BbNOWCQwB0>

Ex 2)  $2 \frac{5}{7}$  <sup>add</sup>  
 $\times \hookrightarrow 7$   
 $= \frac{19}{7}$

You try

$$a) \quad 2 \frac{3}{5} = \frac{13}{5}$$

*(Handwritten notes: a red 'x' is under the 2, a red arrow points from the 2 to the 3, and the word 'add' is written in red above the 3.)*

$$b) \quad 7 \frac{1}{5} = \frac{36}{5}$$

Whole number times denom, then  
add numerator  $\rightarrow$  numerator  
stays same

## Improper Fraction to Mixed Fraction

To change an improper fraction to a mixed number, **divide the numerator by the denominator, the answer will be the whole number part of the mixed number, and the remainder will be the numerator of the mixed number. The denominator stays the same.**

Example 1:  $\frac{15}{7}$        $15 \div 7 = 2$  remainder of 1

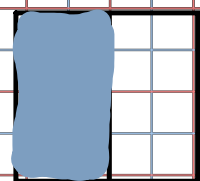
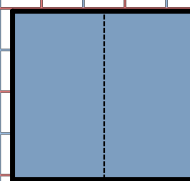
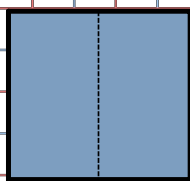
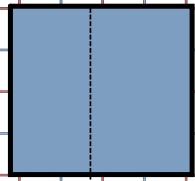
=  $2\frac{1}{7}$

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Example 2:  $\frac{9}{2}$        $9 \div 2 = 4$  remainder 1

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

Write as a mixed fraction then an improper fraction.





$$3a) \frac{6}{4} \mid \frac{2}{4} \begin{matrix} +2 \\ -2 \end{matrix} = 1\frac{1}{2}$$

Sheet 173

# 1, 2, 3, 4

Grade 8 Unit 3 Fractions WS 173 (Mixed & Improper).docx