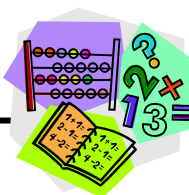


Comparing and Converting Fractions and Mixed Numbers



- When comparing fractions with the same denominator, the size of the numerator indicates the size of the fraction.

Examples

A) $\frac{3}{4} >$ (is greater than) $\frac{1}{4}$

B) $\frac{4}{5} > \frac{2}{5}$

- When comparing mixed numbers, the greater the whole number, the greater the mixed fraction. If the whole numbers are the same, compare the fraction.

Examples

A) $3\frac{3}{8} >$ (is greater than) $2\frac{7}{8}$

B) $5\frac{1}{6} > 4\frac{5}{6}$

C) $5\frac{5}{6} > 5\frac{3}{6}$

- When comparing a mixed number and an improper fraction with the same denominators, you will need to convert the mixed number to an improper fraction, or convert the improper fraction to a mixed number.

Example

$$\frac{29}{8} > 3\frac{3}{8} \quad \text{because} \quad \frac{29}{8} = 3\frac{5}{8}$$

To convert improper fractions and mixed numbers, use the process on the next page.

Converting Mixed Numbers into Improper Fractions

Example

Convert the mixed number $4\frac{1}{3}$ into an improper fraction.

Process	Illustration
Multiply the denominator by the whole number.	$3 \times 4 = 12$
Add the numerator to the answer.	$12 + 1 = 13$
This answer is the numerator.	$\frac{13}{?}$
Keep the same denominator.	$\frac{13}{3}$

$$4\frac{1}{3} = \frac{13}{3} \text{ (thirteen thirds)}$$

Converting Improper Fractions into Mixed Numbers

Example

Convert the improper fraction $\frac{17}{4}$ into a mixed number.

Process	Illustration
Divide the denominator into the numerator. This answer becomes the whole number.	4 goes into 17 → 4 times $\begin{array}{r} 4 \text{ r}1 \\ 4 \overline{)17} \\ \underline{-16} \\ 1 \end{array}$
The remainder becomes the numerator.	$1/?$
The denominator remains the same.	$4\frac{1}{4}$

$$\frac{17}{4} = 4\frac{1}{4} \text{ (4 and one fourth or 4 and one quarter)}$$

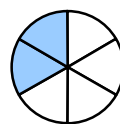
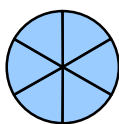
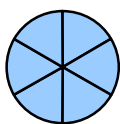
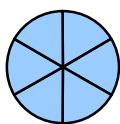
Converting fractions using diagrams

Example



If there are $3\frac{2}{6}$ pies left over, how many people could get a piece the size of $\frac{1}{6}$ of a pie?

Solution: Convert mixed numbers to improper fractions.



In the circles above:

3 circles are shaded = 3

2 of 6 parts are shaded = $\frac{2}{6}$

$3\frac{2}{6}$ is the mixed number that

OR

6 equal parts in 3 circles
and 2 in the fourth circle are
shaded.

20 parts are shaded.

$\frac{20}{6}$ is the improper fraction that
represents the circles.

Twenty people would each get $\frac{1}{6}$ of a pie.



Practice: Comparing and Converting Fractions and Mixed Numbers

- Kyle, the baker, knows the importance of adding ingredients to his dishes in the proper order. In the two recipes below, he must add the ingredients in order from greatest to least. Using the charts below, record the order in which Kyle should add the ingredients.

Ingredient	Amount (in cups)	Order (1 st , 2 nd , 3 rd and 4 th)
Sugar	$1\frac{1}{4}$	
Flour	$\frac{3}{4}$	
Salt	$\frac{1}{4}$	
Milk	$1\frac{3}{4}$	

Ingredient	Amount (in teaspoons)	Order (1 st , 2 nd , etc.)
Salt	$\frac{1}{6}$	
Baking Soda	$\frac{5}{6}$	
Sugar	$1\frac{4}{6}$	
Pepper	$\frac{3}{6}$	
Baking Powder	$1\frac{2}{6}$	
Cream of Tartar	$\frac{4}{6}$	

2. Convert the following mixed numbers into improper fractions using mathematical operations.

a) $3\frac{1}{2}$

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

b) $5\frac{1}{3}$

e) $2\frac{2}{7}$

c) $6\frac{2}{5}$

3. Convert the following improper fractions into mixed numbers using mathematical operations.

a) $\frac{24}{5}$

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

c) $\frac{11}{2}$

d) $\frac{27}{6}$

e) $\frac{18}{4}$

4. Sasha's home economics teacher is also her math teacher. Today he is having Sasha's class make a German bread called Reehah. He writes the recipe on the board as follows:

$\frac{10}{3}$ cups of flour

$\frac{12}{4}$ eggs

$\frac{16}{8}$ teaspoons of salt

$\frac{21}{5}$ cups of milk

$\frac{18}{6}$ tablespoons oil

Sasha is using standard measuring utensils to make Reehah. Convert the recipe above into standard measuring terms (mixed numbers).

5. With a partner, use a variety of strategies, such as cut-out or shaded shapes, fraction circles and/or number lines to display and compare fractions and mixed numbers with the same denominator.



6. Complete the following chart by converting improper fractions into mixed numbers and mixed numbers into improper fractions.

Improper Fraction	Mixed Number
$\frac{19}{7}$	
$\frac{33}{4}$	
	$4\frac{5}{6}$
$\frac{22}{5}$	
	$3\frac{2}{9}$
	$9\frac{4}{5}$
$\frac{38}{6}$	
	$6\frac{1}{4}$
	$5\frac{3}{8}$
$\frac{11}{2}$	
	$9\frac{2}{3}$
$\frac{25}{8}$	
$\frac{14}{3}$	
	$10\frac{4}{5}$

7. Complete the following chart by converting improper fractions into mixed numbers and mixed numbers into improper fractions.

Improper Fraction	Mixed Number
$\frac{17}{4}$	
$\frac{29}{7}$	
	$3\frac{4}{6}$
$\frac{18}{5}$	
	$2\frac{5}{9}$
	$6\frac{1}{5}$
$\frac{31}{6}$	
	$5\frac{2}{3}$
	$7\frac{3}{8}$
$\frac{9}{2}$	
	$4\frac{2}{7}$
$\frac{16}{3}$	
$\frac{27}{8}$	
	$7\frac{2}{3}$