

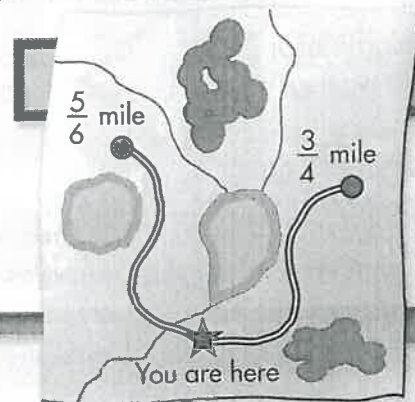
Understand It!

There are different ways to compare and order fractions and mixed numbers.

Comparing and Ordering Fractions and Mixed Numbers

How can you compare fractions?

Shawna and Tom walked two different paths in Trout Park. Shawna walked $\frac{5}{6}$ mile. Tom walked $\frac{3}{4}$ mile. Which is greater, $\frac{5}{6}$ or $\frac{3}{4}$?

**Another Example**

How can you order fractions and mixed numbers?

Write $2\frac{5}{12}$, $\frac{11}{12}$, $3\frac{1}{6}$, and $2\frac{1}{3}$ in order from greatest to least.

You know that $\frac{11}{12} < 1$ and all the mixed numbers are greater than 1.

So, $\frac{11}{12}$ is the least number.

When comparing mixed numbers, look at the whole number parts.

Since $3 > 2$, you know that $3\frac{1}{6}$ is greater than both $2\frac{1}{3}$ and $2\frac{5}{12}$.

Next, compare $2\frac{1}{3}$ and $2\frac{5}{12}$.

Since the whole numbers are the same, compare the fractions.

Compare $\frac{1}{3}$ and $\frac{5}{12}$. Change $\frac{1}{3}$ to $\frac{4}{12}$. $\frac{4}{12} < \frac{5}{12}$.

So, $2\frac{1}{3} < 2\frac{5}{12}$.

From greatest to least, the numbers are $3\frac{1}{6}$, $2\frac{5}{12}$, $2\frac{1}{3}$, $\frac{11}{12}$.

Guided Practice*

Do you know HOW?

Compare. Write $>$, $<$ or $=$ for each \bigcirc .

1. $\frac{3}{5} \bigcirc \frac{4}{5}$

2. $\frac{1}{4} \bigcirc \frac{2}{3}$

Order the numbers from least to greatest.

3. $\frac{2}{3}, \frac{1}{4}, \frac{9}{10}$

4. $1\frac{2}{3}, 2\frac{1}{4}, 1\frac{9}{10}$

$\frac{1}{4}, \frac{2}{3}, \frac{9}{10}$

$1\frac{2}{3}, 1\frac{9}{10}, 2\frac{1}{4}$

Do you UNDERSTAND?

5. How do you know that $\frac{5}{12}$ is less than $\frac{1}{2}$?

6. How do you know that $5\frac{1}{12} > 4\frac{1}{2}$ without finding a common denominator for both fraction parts?

One Way

To compare fractions, find a common denominator by writing the multiples of each denominator.

4: 4, 8, **12**, 16, 20, ...

6: 6, **12**, 18, 24, ...

Use 12 as the common denominator.

$$\frac{5}{6} \times \frac{2}{2} = \frac{10}{12} \quad \frac{3}{4} \times \frac{3}{3} = \frac{9}{12}$$

$$\frac{10}{12} > \frac{9}{12}, \text{ so, } \frac{5}{6} > \frac{3}{4}.$$

Another Way

You can multiply the denominators to find a common denominator.

Compare $\frac{3}{4}$ and $\frac{5}{6}$.

Multiply denominators: $4 \times 6 = 24$.

Use 24 as the common denominator.

$$\frac{5}{6} \times \frac{4}{4} = \frac{20}{24} \quad \frac{3}{4} \times \frac{6}{6} = \frac{18}{24}$$

$$\frac{20}{24} > \frac{18}{24}, \text{ so, } \frac{5}{6} > \frac{3}{4}.$$

Independent Practice

In **7** through **10**, compare the numbers. Write $>$, $<$ or $=$ for each \bigcirc .

Tip You can always multiply the denominators to find a common denominator.

7. $\frac{3}{4} \bigcirc \frac{4}{5}$

8. $\frac{9}{10} \bigcirc \frac{18}{20}$

9. $3\frac{6}{7} \bigcirc 3\frac{13}{14}$

10. $1\frac{7}{8} \bigcirc 1\frac{2}{3}$

In **11** and **12**, order the numbers from least to greatest.

11. $\frac{1}{2}, \frac{1}{4}, \frac{5}{6}, \frac{3}{4}$ 1/4, 1/2, 3/4, 5/6

12. $2\frac{1}{2}, 1\frac{7}{8}, 2\frac{3}{4}, 2\frac{3}{5}$ 1 7/8, 2 1/2, 2 3/5, 2 3/4

Problem Solving

13. Birdhouses can provide homes for many different kinds of birds. The size of the opening will determine the kind of bird that can use it. Order the data in the table from least to greatest.

1, 1 1/8, 1 1/2, 3

14. Sarah rode her bike $2\frac{1}{2}$ miles on Thursday, $2\frac{7}{10}$ miles on Friday, and $2\frac{5}{8}$ miles on Saturday. Which day did she ride farthest?

Friday

15. At the school fair, 157 tickets were sold. The tickets cost \$3 apiece. The goal was to make \$300 in ticket sales. By how much was the goal exceeded?

A \$71

C \$371

B \$171

D \$471

Type of Bird	Size of Birdhouse Opening (in inches)
Screech owl	3
Chickadee	$1\frac{1}{8}$
House wren	1
Tree swallow	$1\frac{1}{2}$

1. A nature trail is 15 miles long. Seth and Micah hiked 5 miles on the trail. What fraction of the trail did they hike?

A $\frac{1}{20}$

B $\frac{1}{15}$

C $\frac{1}{5}$

D $\frac{1}{3}$

2. Taryn has a watering can with 32 fluid ounces of water in it. She pours 8 fluid ounces of the water onto a plant. What fraction of the water does she pour?

A $\frac{1}{2}$

B $\frac{1}{4}$

C $\frac{1}{8}$

D $\frac{1}{16}$

3. A letter carrier delivers 350 letters in 70 minutes. What is the carrier's average number of letters delivered per minute?

A 50

B 20

C 5

D 2

4. Maya has a bag of 100 pretzels. She shares 25 pretzels with her friends. What fraction of the pretzels are left in the bag? Write two equivalent fractions to represent your answer.

Sample answers:

$$\frac{75}{100}, \frac{15}{20}, \frac{3}{4}$$

5. The Carter family has 5 children. Two of the children are boys. Use this number line to show the fraction of the children in the Carter family who are girls.



6. List the number of faces, edges, and vertices in this rectangular prism.



Faces: 6 faces

Edges: 12 edges

Vertices: 8 vertices

Problem of the Day

9-5

Boxes of CDs are labeled on the top and front of each box. If there are 3 rows of boxes stacked on top of each other and 4 boxes in each row, how many labels are showing?

16 Labels Showing

16 are Showing

Problem of the Day

9-5

1. Order the following numbers from least to greatest:

$$1\frac{1}{4}, \frac{3}{2}, 1\frac{6}{8}, 1$$

A $\frac{3}{2}, 1, 1\frac{1}{4}, 1\frac{6}{8}$

B $1, \frac{3}{2}, 1\frac{1}{4}, 1\frac{6}{8}$

C $1, \frac{3}{2}, 1\frac{6}{8}, 1\frac{1}{4}$

D $1, 1\frac{1}{4}, \frac{3}{2}, 1\frac{6}{8}$

2. What number is a common denominator of these numbers?

$$\frac{14}{5}, \frac{7}{8}, \frac{3}{4}, \frac{7}{2}$$

A 8

B 20

C 40

D 42

3. Mike practiced his trumpet $1\frac{1}{4}$ hours on Monday, $1\frac{1}{2}$ hours on Tuesday, $\frac{7}{8}$ of an hour on Wednesday, $1\frac{2}{3}$ hours on Thursday, and $1\frac{3}{5}$ hours on Friday. On which day did Mike spend the most time practicing?

A Monday

B Tuesday

C Thursday

D Friday

4. **Writing to Explain** Place the numbers below in order from least to greatest. Start by expressing each number as a fraction or as a mixed number. Then find a common denominator for all the fractions. Show your work.

$$\frac{7}{2}, \frac{7}{8}, \frac{13}{4}, 3\frac{5}{9}$$

See student samples at the right.

$$\begin{aligned} \frac{7}{2} &= 3\frac{1}{2} = 3\frac{36}{72} \\ \frac{7}{8} &= \frac{63}{72} \\ \frac{13}{4} &= 3\frac{1}{4} = 3\frac{18}{72} \\ 3\frac{5}{9} &= 3\frac{40}{72} \end{aligned}$$

$$\frac{7}{8}, \frac{13}{4}, \frac{7}{2}, 3\frac{5}{9}$$