7th Grade
2.4 Comparing and Ordering Rational Numbers

Turn to page 227 in your book.

WHEN **am I ever going to use this?**

SOFTBALL The table shows how Latanya and Patrick did during the first month of the softball season.

Player	At-bats	Hits
Latanya	12	7
Patrick	18	8

1. A batting average is the ratio of hits to at-bats. Write each player's batting average as a fraction.
2. Estimate which fraction is greater than $\frac{1}{2}$. Which is less than $\frac{1}{2}$?
3. Which player has the better batting average?

Latanya

$\frac{7}{12} > \frac{1}{2}$ $\frac{8}{18} < \frac{1}{2}$

L P

$\frac{21}{36} > \frac{16}{36}$

To compare and order fractions like the ones above, you can rewrite each fraction with a common denominator and then compare the numerators.

A **common denominator** is a common multiple of the denominators of two or more fractions. The **least common denominator (LCD)** is the LCM of the denominators.

LCM

EXAMPLE **Compare Fractions**

1 Who has the better batting average, Latanya or Patrick?

Method 1 Rename using the LCD. Then compare numerators.

use when denominators are small or you only have to change one fraction

Latanya: $\frac{21}{36}$

Patrick: $\frac{16}{36}$

Latanya

Method 2 Write each fraction as a decimal. Then compare decimals.

use when denominators are large

Latanya: $\frac{7}{12}$ $12\overline{)7.0000}$ $= .58\overline{3}$

Patrick: $\frac{8}{18}$ $18\overline{)8.00}$ $= .\overline{4}$

GRADES

Enrique and his younger brother both had a math test last Friday. Enrique scored 48 points out of 60 and his brother scored 55 points out of 75. Who got the better score, Enrique or his brother?

E $\frac{48}{60} = .8$ EB $\frac{55}{75} \approx .7$

$60\overline{)48.0}$ $75\overline{)55.000}$

Your Turn Replace each ● with <, >, or = to make a true sentence.

a. $\frac{5}{6} \bullet \frac{7}{9}$ $\frac{45}{54}$ $\frac{42}{54}$

b. $\frac{1}{5} \bullet \frac{7}{50}$ $\frac{10}{50}$ $\frac{7}{50}$

c. $\frac{9}{16} \bullet \frac{7}{10}$ .5 .7

$16\overline{)9.000}$ $= .5625$

EXAMPLE **Compare Ratios**

2 **MOUNTAIN BIKING** In Coach Ito's first period class, 19 out of 32 students owned a mountain bike. In his seventh period class, 16 out of 28 students owned a mountain bike. Did a greater fraction of students own a mountain bike in the first period class or the seventh period class?

1st $\frac{19}{32}$ .59 32|19.00 160 300

7th $\frac{16}{28}$ .57 28|16.0 0 140 200 196 4

$\frac{19}{32} > \frac{16}{28}$

EXAMPLE **Order Ratios**

3 Order 0.6, 48%, and $\frac{1}{2}$ from least to greatest.

F $\frac{6}{10}=\frac{60}{100}$ $\frac{48}{100}=\frac{12}{25}$ $\frac{1}{2}=\frac{50}{100}$

D .6 .48 .5

% 60% 48% 50%

48%, $\frac{1}{2}$, .6

Order $\frac{7}{10}$, 0.6, and 72% from least to greatest.

F $\frac{70}{100}$ $\frac{60}{100}$ $\frac{72}{100}$

D .7 .6 .72

% 70% 60% 72%

.6, $\frac{7}{10}$, 72%

Your Turn Order each set of ratios from least to greatest.

d. 22%, 0.3, $\frac{2}{10}$ e. $\frac{1}{5}$, 2%, 0.18 f. 0.74, $\frac{3}{4}$, 70%

d. $\frac{2}{10}$, 22%, 0.3 $\frac{20}{100}$ 20%

e. 2%, 0.18, $\frac{1}{5}$ $\frac{20}{100}$ 20%

f. 70%, 0.74, $\frac{3}{4}$ .75 $\frac{75}{100}$ 75%

Homework

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