Compare and Order Fractions and Decimals

Compare \(\frac{1}{6}\) and \(\frac{4}{15}\).

**Step 1:** Find the least common multiple (LCM). You can use prime factorization.

\[
6 = 2 \times 3 \quad 15 = 3 \times 5
\]

The LCM is \(2 \times 3 \times 5\), or 30.

**Step 2:** Write equivalent fractions. Use the LCM as the common denominator.

\[
\begin{align*}
\frac{1}{6} &= \frac{1 \times 5}{6 \times 5} = \frac{5}{30} \\
\frac{4}{15} &= \frac{4 \times 2}{15 \times 2} = \frac{8}{30}
\end{align*}
\]

**Step 3:** Compare the numerators.

\[
\frac{5}{30} < \frac{8}{30} \quad \text{so} \quad \frac{1}{6} < \frac{4}{15}
\]

Compare 1.8 and \(1\frac{2}{5}\).

**Step 1:** Write 1.8 as a mixed number with 10 as the denominator.

\[1.8 = 1\frac{8}{10}\]

**Step 2:** Change \(1\frac{2}{5}\) to a mixed number with 10 as the denominator.

\[
\frac{2}{5} = \frac{2 \times 2}{5 \times 2} = \frac{4}{10}, \quad \text{so} \quad 1\frac{2}{5} = 1\frac{4}{10}
\]

**Step 3:** Compare the mixed numbers.

\[1\frac{8}{10} > 1\frac{4}{10}, \quad \text{so} \quad 1.8 > 1\frac{2}{5}\]

Order 0.7, \(\frac{3}{5}\), and \(\frac{1}{2}\) from least to greatest.

**Step 1:** Write each number as a fraction with 10 as the common denominator.

\[
\begin{align*}
0.7 &= \frac{7}{10} \\
\frac{3}{5} &= \frac{3 \times 2}{5 \times 2} = \frac{6}{10} \\
\frac{1}{2} &= \frac{1 \times 5}{2 \times 5} = \frac{5}{10}
\end{align*}
\]

**Step 2:** Compare and order the numerators.

\[
\frac{5}{10} < \frac{6}{10} < \frac{7}{10}, \quad \text{so} \quad \frac{1}{2} < \frac{3}{5} < 0.7
\]

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

1. \(\frac{4}{5}\) \(\bigcirc\) \(\frac{7}{8}\)
2. \(\frac{2}{5}\) \(\bigcirc\) \(\frac{3}{4}\)
3. 1.9 \(\bigcirc\) \(\frac{3}{4}\)
4. \(\frac{5}{2}\) \(\bigcirc\) \(\frac{5}{5}\)
5. \(\frac{1}{4}\) \(\bigcirc\) \(\frac{1}{6}\)
6. \(2\frac{1}{4}\) \(\bigcirc\) 2.25
7. \(\frac{3}{5}\) \(\bigcirc\) 3.5
8. \(\frac{4}{12}\) \(\bigcirc\) \(\frac{2}{4}\)

Compare. Write in order from least to greatest.

9. \(\frac{1}{2}\), 0.65, \(\frac{7}{10}\)
10. \(\frac{12}{25}\), \(\frac{3}{4}\), 0.45, 0.75