

Comparing Fractions

Comparing fractions becomes easy with two rules: *same denominator*, just compare numerators; *same numerator*, the bigger denominator makes *smaller* pieces.

| If... | Compare by... |
|------------------|--|
| Same denominator | The bigger numerator wins ($\frac{5}{8} > \frac{3}{8}$) |
| Same numerator | The smaller denominator wins ($\frac{1}{3} > \frac{1}{8}$) |
| Different both | Compare to a benchmark like $\frac{1}{2}$ or use equivalents |

Key Concepts

1. When two fractions have the **same denominator**, just compare numerators — the bigger numerator is bigger.
2. When two fractions have the **same numerator**, the one with the *smaller* denominator is bigger. Bigger denominator = more, smaller pieces. ($\frac{1}{4}$ is bigger than $\frac{1}{8}$ because $\frac{1}{4}$ is one slice of a pie cut into 4 pieces, while $\frac{1}{8}$ is one slice of a pie cut into 8 pieces.)
3. When neither part matches, use a **benchmark** like $\frac{1}{2}$. If one is bigger than $\frac{1}{2}$ and the other is smaller, the bigger one wins.
4. You can always make equivalent fractions with the same denominator and then just compare numerators.


Worked Examples

① Compare $\frac{2}{6}$ and $\frac{4}{6}$.

 Same denominator (6). Bigger numerator wins. $4 > 2$, so $\frac{4}{6} > \frac{2}{6}$.


 **Answer:** $\frac{2}{6} < \frac{4}{6}$

② Compare $\frac{1}{3}$ and $\frac{1}{8}$.

 Same numerator (1). Smaller denominator wins because the pieces are bigger. A pie split into 3 pieces gives larger slices than a pie split into 8 pieces. So $\frac{1}{3} > \frac{1}{8}$.

 **Answer:** $\frac{1}{3} > \frac{1}{8}$

③ Compare $\frac{3}{8}$ and $\frac{2}{3}$ using the benchmark $\frac{1}{2}$.

 Test each against $\frac{1}{2}$. For $\frac{3}{8}$: $\frac{1}{2}$ of eighths is $\frac{4}{8}$, and $3 < 4$, so $\frac{3}{8} < \frac{1}{2}$. For $\frac{2}{3}$: $\frac{1}{2}$ of thirds is $\frac{1.5}{3}$, and $2 > 1.5$, so $\frac{2}{3} > \frac{1}{2}$. One is below half, the other is above, so $\frac{3}{8} < \frac{2}{3}$.

 **Answer:** $\frac{3}{8} < \frac{2}{3}$

Practice Problems

Compare with $<$, $>$, or $=$.

1. $\frac{3}{4}$ ○ $\frac{1}{4}$ _____

2. $\frac{2}{6}$ ○ $\frac{5}{6}$ _____

3. $\frac{1}{3}$ ○ $\frac{1}{6}$ _____

4. $\frac{2}{4}$ ○ $\frac{2}{8}$ _____

5. $\frac{4}{8}$ ○ $\frac{1}{2}$ _____

6. $\frac{5}{6}$ ○ $\frac{3}{6}$ _____

7. $\frac{1}{4}$ ○ $\frac{1}{2}$ _____

8. $\frac{3}{8}$ ○ $\frac{7}{8}$ _____

9. $\frac{2}{3}$ ○ $\frac{2}{4}$ _____

10. $\frac{1}{8}$ ○ $\frac{1}{3}$ _____

11. $\frac{6}{8}$ ○ $\frac{3}{4}$ _____

12. $\frac{4}{6}$ ○ $\frac{1}{6}$ _____

Study Tips

- 👉 “Same numerator” is the tricky case. Remember that a bigger denominator makes *smaller* pieces. Think of cutting a pizza into more slices: each slice gets thinner.
- 👉 Drawing fraction strips works every time. Two equal-length strips, divided into different numbers of pieces, let you see the comparison instantly.
- 👉 The benchmark $\frac{1}{2}$ is your best friend for comparisons with unlike denominators.

Word Problems

1. Kim read $\frac{2}{3}$ of her book and Ben read $\frac{2}{6}$ of the same book. Who read more? Explain.
Answer: _____
2. Two pies are the same size. One has $\frac{5}{8}$ left and the other has $\frac{3}{8}$ left. Which pie has more left? Use $>$, $<$, or $=$.
Answer: _____

Answer Key — with Friendly Explanations

Practice Problems

1. Same denominator: $3 > 1$.  **Answer:** $>$
2. Same denominator: $2 < 5$.  **Answer:** $<$
3. Same numerator. Smaller denominator wins. $3 < 6$, so $\frac{1}{3}$ has bigger pieces.  **Answer:** $>$
4. Same numerator. $4 < 8$, so $\frac{2}{4}$ wins.  **Answer:** $>$
5. $\frac{4}{8} = \frac{1}{2}$ (divide both by 4).  **Answer:** $=$
6. Same denominator: $5 > 3$.  **Answer:** $>$
7. Same numerator. $4 > 2$, so $\frac{1}{4}$ has smaller pieces.  **Answer:** $<$
8. Same denominator: $3 < 7$.  **Answer:** $<$
9. Same numerator. $3 < 4$, so thirds are bigger than fourths.  **Answer:** $>$
10. Same numerator. $8 > 3$, so $\frac{1}{8}$ has smaller pieces.  **Answer:** $<$
11. $\frac{6}{8} = \frac{3}{4}$ (divide both by 2).  **Answer:** $=$
12. Same denominator: $4 > 1$.  **Answer:** $>$

Word Problems

1. Same numerator. Thirds $>$ sixths, so Kim read more.  **Answer:** *Kim*
2. Same denominator, $5 > 3$. First pie has more left.  **Answer:** *First pie ($\frac{5}{8} > \frac{3}{8}$)*

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