

Comparing Fractions

Name: _____ Date: _____ Score: _____ / 24

Q Quick Review

To **compare** two fractions means to decide which is bigger, which is smaller, or whether they are equal. If the fractions have the **same denominator**, just compare the numerators — more pieces of the same size means a bigger fraction. If the fractions have the **same numerator**, the one with the *smaller* denominator is bigger, because the pieces are larger. When the denominators are different, rewrite the fractions with a **common denominator** so the pieces match. You can also compare to the **benchmark** $\frac{1}{2}$. Use the symbols $<$, $>$, or $=$.

◇ **Example:** Compare $\frac{2}{3}$ and $\frac{3}{4}$ using $<$, $>$, or $=$.

⇒ The denominators 3 and 4 are different, so let's give both fractions the common denominator 12. For $\frac{2}{3}$, multiply top and bottom by 4: $\frac{8}{12}$. For $\frac{3}{4}$, multiply top and bottom by 3: $\frac{9}{12}$. Now the pieces are the same size, so just compare the numerators: $8 < 9$. That means $\frac{2}{3} < \frac{3}{4}$.

Answer: $\frac{2}{3} < \frac{3}{4}$

PRACTICE

Compare each pair of fractions. Write $<$, $>$, or $=$ between them.

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|--|-------|--|-------|
| 1. $\frac{1}{5} \square \frac{3}{5}$ | _____ | 11. $\frac{2}{3} \square \frac{5}{6}$ | _____ |
| 2. $\frac{4}{6} \square \frac{2}{6}$ | _____ | 12. $\frac{3}{4} \square \frac{5}{8}$ | _____ |
| 3. $\frac{5}{8} \square \frac{5}{8}$ | _____ | 13. $\frac{1}{2} \square \frac{5}{10}$ | _____ |
| 4. $\frac{7}{10} \square \frac{3}{10}$ | _____ | 14. $\frac{2}{4} \square \frac{1}{2}$ | _____ |
| 5. $\frac{1}{3} \square \frac{1}{6}$ | _____ | 15. $\frac{3}{5} \square \frac{7}{10}$ | _____ |
| 6. $\frac{1}{8} \square \frac{1}{4}$ | _____ | 16. $\frac{5}{6} \square \frac{7}{12}$ | _____ |
| 7. $\frac{3}{4} \square \frac{3}{8}$ | _____ | 17. $\frac{1}{3} \square \frac{1}{2}$ | _____ |
| 8. $\frac{2}{5} \square \frac{2}{3}$ | _____ | 18. $\frac{3}{8} \square \frac{1}{2}$ | _____ |
| 9. $\frac{1}{2} \square \frac{3}{4}$ | _____ | 19. $\frac{7}{12} \square \frac{1}{2}$ | _____ |
| 10. $\frac{1}{2} \square \frac{2}{6}$ | _____ | 20. $\frac{2}{3} \square \frac{3}{5}$ | _____ |

◆ Word Problems

21. Noah read $\frac{3}{4}$ of his book and Emma read $\frac{5}{8}$ of the same book. Who read more? _____
22. In gym class, Sam ran $\frac{2}{3}$ of a mile and Tara ran $\frac{5}{6}$ of a mile. Who ran the shorter distance? _____
23. Two water bottles are the same size. One is $\frac{1}{3}$ full and the other is $\frac{1}{6}$ full. Which bottle has more water? _____
24. For a bake sale, Lily frosted $\frac{7}{10}$ of her cupcakes and Ben frosted $\frac{3}{5}$ of his. Who frosted a greater fraction of their cupcakes? _____



Answer Keys

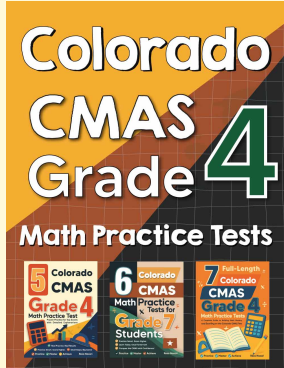
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|---|---|
| <p>1. $\frac{1}{5} < \frac{3}{5}$</p> <p>2. $\frac{4}{6} > \frac{2}{6}$</p> <p>3. $\frac{5}{8} = \frac{5}{8}$</p> <p>4. $\frac{7}{10} > \frac{3}{10}$</p> <p>5. $\frac{1}{3} > \frac{1}{6}$</p> <p>6. $\frac{1}{8} < \frac{1}{4}$</p> <p>7. $\frac{3}{4} > \frac{3}{8}$</p> <p>8. $\frac{2}{5} < \frac{2}{3}$</p> <p>9. $\frac{1}{2} < \frac{3}{4}$</p> <p>10. $\frac{1}{2} > \frac{2}{6}$</p> <p>11. $\frac{2}{3} < \frac{5}{6}$</p> <p>12. $\frac{3}{4} > \frac{5}{8}$</p> | <p>13. $\frac{1}{2} = \frac{5}{10}$</p> <p>14. $\frac{2}{4} = \frac{1}{2}$</p> <p>15. $\frac{3}{5} < \frac{7}{10}$</p> <p>16. $\frac{5}{6} > \frac{7}{12}$</p> <p>17. $\frac{1}{3} < \frac{1}{2}$</p> <p>18. $\frac{3}{8} < \frac{1}{2}$</p> <p>19. $\frac{7}{12} > \frac{1}{2}$</p> <p>20. $\frac{2}{3} > \frac{3}{5}$</p> <p>21. Noah, since $\frac{3}{4} > \frac{5}{8}$</p> <p>22. Sam, since $\frac{2}{3} < \frac{5}{6}$</p> <p>23. The $\frac{1}{3}$ bottle</p> <p>24. Lily, since $\frac{7}{10} > \frac{3}{5}$</p> |
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Step-by-Step Explanations

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| <p>1. Same denominator, so compare tops: $1 < 3$.</p> <p>2. Same denominator, so compare tops: $4 > 2$.</p> <p>3. The fractions are identical, so they are equal.</p> <p>4. Same denominator, so compare tops: $7 > 3$.</p> <p>5. Same top, smaller bottom wins: thirds are bigger than sixths.</p> <p>6. Same top, smaller bottom wins: fourths are bigger than eighths.</p> <p>7. Same top, smaller bottom wins: fourths are bigger than eighths.</p> <p>8. Same top, smaller bottom wins: thirds are bigger than fifths.</p> <p>9. Rewrite $\frac{1}{2} = \frac{2}{4}$. Then $\frac{2}{4} < \frac{3}{4}$.</p> <p>10. Rewrite $\frac{1}{2} = \frac{2}{4}$. Then $\frac{2}{4} > \frac{2}{6}$.</p> <p>11. Rewrite $\frac{2}{3} = \frac{4}{6}$. Then $\frac{4}{6} < \frac{5}{6}$.</p> <p>12. Rewrite $\frac{3}{4} = \frac{6}{8}$. Then $\frac{6}{8} > \frac{5}{8}$.</p> | <p>13. Rewrite $\frac{1}{2} = \frac{5}{10}$, so the fractions are equal.</p> <p>14. Simplify $\frac{2}{4} = \frac{1}{2}$, so the fractions are equal.</p> <p>15. Rewrite $\frac{3}{5} = \frac{6}{10}$. Then $\frac{6}{10} < \frac{7}{10}$.</p> <p>16. Rewrite $\frac{5}{6} = \frac{10}{12}$. Then $\frac{10}{12} > \frac{7}{12}$.</p> <p>17. Use sixths: $\frac{1}{3} = \frac{2}{6}$ and $\frac{1}{2} = \frac{3}{6}$, so $2 < 3$.</p> <p>18. $\frac{1}{2} = \frac{4}{8}$, and $\frac{3}{8}$ is less than half.</p> <p>19. $\frac{1}{2} = \frac{6}{12}$, and $\frac{7}{12}$ is more than half.</p> <p>20. Use fifteenths: $\frac{2}{3} = \frac{10}{15}$ and $\frac{3}{5} = \frac{9}{15}$, so $10 > 9$.</p> <p>21. Rewrite $\frac{3}{4} = \frac{6}{8}$. Since $\frac{6}{8} > \frac{5}{8}$, Noah read more.</p> <p>22. Rewrite $\frac{2}{3} = \frac{4}{6}$. Since $\frac{4}{6} < \frac{5}{6}$, Sam ran the shorter distance.</p> <p>23. The numerators are both 1, so the smaller denominator gives the larger fraction. Thirds are bigger than sixths, so $\frac{1}{3} > \frac{1}{6}$.</p> <p>24. Rewrite $\frac{3}{5} = \frac{6}{10}$. Since $\frac{7}{10} > \frac{6}{10}$, Lily frosted the greater fraction.</p> |
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