

# 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.

- |  |       |  |       |
|--|-------|--|-------|
| 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

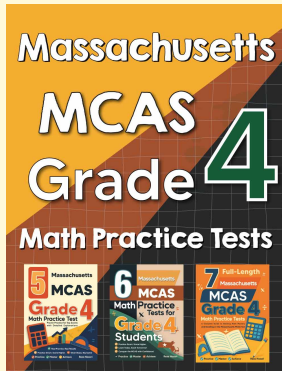
<p>1. <math>\frac{1}{5} &lt; \frac{3}{5}</math></p> <p>2. <math>\frac{4}{6} &gt; \frac{2}{6}</math></p> <p>3. <math>\frac{5}{8} = \frac{5}{8}</math></p> <p>4. <math>\frac{7}{10} &gt; \frac{3}{10}</math></p> <p>5. <math>\frac{1}{3} &gt; \frac{1}{6}</math></p> <p>6. <math>\frac{1}{8} &lt; \frac{1}{4}</math>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

<p>1. Same denominator, so compare tops: <math>1 &lt; 3</math>.</p> <p>2. Same denominator, so compare tops: <math>4 &gt; 2</math>.</p> <p>3. The fractions are identical, so they are equal.</p> <p>4. Same denominator, so compare tops: <math>7 &gt; 3</math>.</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 <math>\frac{1}{2} = \frac{2}{4}</math>. Then <math>\frac{2}{4} &lt; \frac{3}{4}</math>.</p> <p>10. Rewrite <math>\frac{1}{2} = \frac{2}{4}</math>. Then <math>\frac{2}{4} &gt; \frac{2}{6}</math>.</p> <p>11. Rewrite <math>\frac{2}{3} = \frac{4}{6}</math>. Then <math>\frac{4}{6} &lt; \frac{5}{6}</math>.</p> <p>12. Rewrite <math>\frac{3}{4} = \frac{6}{8}</math>. Then <math>\frac{6}{8} &gt; \frac{5}{8}</math>.</p>	<p>13. Rewrite <math>\frac{1}{2} = \frac{5}{10}</math>, so the fractions are equal.</p> <p>14. Simplify <math>\frac{2}{4} = \frac{1}{2}</math>, so the fractions are equal.</p> <p>15. Rewrite <math>\frac{3}{5} = \frac{6}{10}</math>. Then <math>\frac{6}{10} &lt; \frac{7}{10}</math>.</p> <p>16. Rewrite <math>\frac{5}{6} = \frac{10}{12}</math>. Then <math>\frac{10}{12} &gt; \frac{7}{12}</math>.</p> <p>17. Use sixths: <math>\frac{1}{3} = \frac{2}{6}</math> and <math>\frac{1}{2} = \frac{3}{6}</math>, so <math>2 &lt; 3</math>.</p> <p>18. <math>\frac{1}{2} = \frac{4}{8}</math>, and <math>\frac{3}{8}</math> is less than half.</p> <p>19. <math>\frac{1}{2} = \frac{6}{12}</math>, and <math>\frac{7}{12}</math> is more than half.</p> <p>20. Use fifteenths: <math>\frac{2}{3} = \frac{10}{15}</math> and <math>\frac{3}{5} = \frac{9}{15}</math>, so <math>10 &gt; 9</math>.</p> <p>21. Rewrite <math>\frac{3}{4} = \frac{6}{8}</math>. Since <math>\frac{6}{8} &gt; \frac{5}{8}</math>, Noah read more.</p> <p>22. Rewrite <math>\frac{2}{3} = \frac{4}{6}</math>. Since <math>\frac{4}{6} &lt; \frac{5}{6}</math>, 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 <math>\frac{1}{3} &gt; \frac{1}{6}</math>.</p> <p>24. Rewrite <math>\frac{3}{5} = \frac{6}{10}</math>. Since <math>\frac{7}{10} &gt; \frac{6}{10}</math>, Lily frosted the greater fraction.</p>
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