

# 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

1.  $\frac{1}{5} < \frac{3}{5}$

2.  $\frac{4}{6} > \frac{2}{6}$

3.  $\frac{5}{8} = \frac{5}{8}$

4.  $\frac{7}{10} > \frac{3}{10}$

5.  $\frac{1}{3} > \frac{1}{6}$

6.  $\frac{1}{8} < \frac{1}{4}$

7.  $\frac{3}{4} > \frac{3}{8}$

8.  $\frac{2}{5} < \frac{2}{3}$

9.  $\frac{1}{2} < \frac{3}{4}$

10.  $\frac{1}{2} > \frac{2}{6}$

11.  $\frac{2}{3} < \frac{5}{6}$

12.  $\frac{3}{4} > \frac{5}{8}$

13.  $\frac{1}{2} = \frac{5}{10}$

14.  $\frac{2}{4} = \frac{1}{2}$

15.  $\frac{3}{5} < \frac{7}{10}$

16.  $\frac{5}{6} > \frac{7}{12}$

17.  $\frac{1}{3} < \frac{1}{2}$

18.  $\frac{3}{8} < \frac{1}{2}$

19.  $\frac{7}{12} > \frac{1}{2}$

20.  $\frac{2}{3} > \frac{3}{5}$

21. Noah, since  $\frac{3}{4} > \frac{5}{8}$

22. Sam, since  $\frac{2}{3} < \frac{5}{6}$

23. The  $\frac{1}{3}$  bottle

24. Lily, since  $\frac{7}{10} > \frac{3}{5}$

### Step-by-Step Explanations

1. Same denominator, so compare tops:  $1 < 3$ .2. Same denominator, so compare tops:  $4 > 2$ .

3. The fractions are identical, so they are equal.

4. Same denominator, so compare tops:  $7 > 3$ .

5. Same top, smaller bottom wins: thirds are bigger than sixths.

6. Same top, smaller bottom wins: fourths are bigger than eighths.

7. Same top, smaller bottom wins: fourths are bigger than eighths.

8. Same top, smaller bottom wins: thirds are bigger than fifths.

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

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