Compare Expressions

Use what you have learned about addition, subtraction, multiplication, and division of fractions and comparing fractions and mixed numbers to compare the expressions. Write >, <, or =.

1. \( \frac{3}{4} \div \frac{1}{2} \) \> \( \frac{6}{8} + \frac{7}{8} \)

2. \( \frac{4}{5} \times \frac{5}{8} \) \> \( \frac{8}{10} - \frac{2}{5} \)

3. \( \frac{7}{10} \div \frac{1}{2} \) \> \( \frac{3}{5} \) of 2

4. \( \frac{3}{8} + \frac{1}{4} \) \> \( \frac{2}{3} \div \frac{5}{6} \)

5. \( \frac{1}{9} \div \frac{2}{3} \) \> \( \frac{1}{3} \times \frac{1}{2} \)

6. \( \frac{7}{8} \div \frac{3}{5} \) \> \( \frac{3}{5} \div \frac{7}{8} \)

7. \( \frac{1}{2} \) of \( \frac{4}{9} \) \> \( \frac{2}{5} \div \frac{2}{3} \)

8. \( \frac{3}{10} + \frac{1}{2} \) \> \( \frac{3}{8} \div \frac{1}{4} \)

9. \( \frac{5}{8} \div \frac{5}{6} \) \> \( \frac{4}{5} \div \frac{1}{6} \)

10. \( \frac{3}{4} \times \frac{3}{5} \) \> \( \frac{1}{3} \div \frac{9}{10} \)

11. \( \frac{7}{10} \times \frac{5}{8} \) \> \( \frac{3}{8} \times \frac{7}{12} \)

12. \( \frac{2}{5} \div \frac{8}{9} \) \> \( \frac{1}{4} \div \frac{7}{8} \)

13. \( \frac{5}{8} \div \frac{4}{5} \) \> \( \frac{2}{3} \times \frac{1}{4} \)

14. \( \frac{2}{3} + \frac{5}{9} \) \> \( \frac{3}{4} \div \frac{1}{3} \)

15. List the expressions with sums, differences, products, or quotients greater than 1.

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16. Analyze It  Look at the division expressions you wrote in exercise 15. What generalization can you make about the size of a quotient in relation to the sizes of fractional dividends and divisors? Do you think the opposite is true? Explain.

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### Compare Expressions

Use what you have learned about addition, subtraction, multiplication, and division of fractions and comparing fractions and mixed numbers to compare the expressions. Write $>$, $<$, or $\leq$.

<table>
<thead>
<tr>
<th>Expression</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{3}{4} \div \frac{1}{2}$</td>
<td>$\leq \frac{3}{2}$</td>
</tr>
<tr>
<td>$\frac{7}{10} \div \frac{1}{2}$</td>
<td>$&gt; \frac{3}{5}$ of 2</td>
</tr>
<tr>
<td>$\frac{1}{9} \div \frac{2}{3}$</td>
<td>$= \frac{1}{3} \times \frac{1}{2}$</td>
</tr>
<tr>
<td>$\frac{1}{2}$ of $\frac{4}{9}$</td>
<td>$&lt; \frac{2}{5} \div \frac{2}{3}$</td>
</tr>
<tr>
<td>$\frac{5}{8} \div \frac{5}{6}$</td>
<td>$&lt; \frac{4}{5} \div \frac{1}{6}$</td>
</tr>
<tr>
<td>$\frac{7}{10} \times \frac{5}{8}$</td>
<td>$&gt; \frac{3}{8} \times \frac{7}{12}$</td>
</tr>
<tr>
<td>$\frac{5}{8} \div \frac{4}{5}$</td>
<td>$&gt; \frac{2}{3} \times \frac{1}{4}$</td>
</tr>
</tbody>
</table>

### 15. List the expressions with sums, differences, products, or quotients greater than 1.

$\frac{3}{4} \div \frac{1}{6} + \frac{7}{8}, \frac{7}{10} \div \frac{1}{2}, \frac{3}{2}, \frac{5}{8} \times \frac{7}{12}, \frac{7}{8} \div \frac{3}{5}, \frac{3}{8} \div \frac{1}{4}, \frac{4}{5} \div \frac{1}{6}, \frac{2}{3} + \frac{5}{9}, \frac{3}{4} \div \frac{1}{3}$

### 16. Analyze It

Look at the division expressions you wrote in exercise 15. What generalization can you make about the size of a quotient in relation to the sizes of fractional dividends and divisors? Do you think the opposite is true? Explain.

**Sample response:** When the dividend is greater than the divisor, the quotient is greater than 1. I think the opposite is true. When the dividend is less than the divisor, the quotient is less than 1.