

Dividing Fractions

Name: _____ Date: _____ Score: _____ / 24

Quick Review

To divide by a fraction, **multiply by its reciprocal**. The **reciprocal** of a fraction is that fraction flipped upside down — the reciprocal of $\frac{1}{2}$ is $\frac{2}{1}$. So $\frac{2}{3} \div \frac{1}{2}$ becomes $\frac{2}{3} \times \frac{2}{1}$. A helpful phrase is “**keep, change, flip**”: keep the first fraction, change \div to \times , and flip the second one. Then multiply as usual and **simplify**. Dividing by a fraction less than 1 gives a *bigger* answer — that is expected!

◇ **Example:** Divide $\frac{2}{3} \div \frac{1}{2}$.
 ⇒ Use “keep, change, flip.” **Keep** the first fraction $\frac{2}{3}$. **Change** the division to multiplication. **Flip** the second fraction: $\frac{1}{2}$ becomes $\frac{2}{1}$. Now multiply: $\frac{2}{3} \times \frac{2}{1} = \frac{4}{3}$. Converting to a mixed number, $\frac{4}{3} = 1\frac{1}{3}$.
Answer: $\frac{4}{3} = 1\frac{1}{3}$

PRACTICE

Divide. Write each answer in simplest form.

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

Word Problems

- A ribbon is $\frac{3}{4}$ meter long. It is cut into pieces each $\frac{1}{2}$ meter long. How many pieces are there? _____
- There is $\frac{5}{6}$ cup of trail mix to share into $\frac{1}{3}$ -cup servings. How many servings are there? _____
- A board $\frac{7}{8}$ foot long is split into $\frac{1}{4}$ -foot sections. How many sections are made? _____
- A jug holds $\frac{1}{2}$ gallon of lemonade poured into $\frac{1}{8}$ -gallon cups. How many cups can be filled? _____



Answer Keys

<p>1. $\frac{4}{3}$</p> <p>2. $\frac{3}{2}$</p> <p>3. $\frac{5}{2}$</p> <p>4. $\frac{6}{5}$</p> <p>5. $\frac{7}{2}$</p> <p>6. $\frac{2}{3}$</p> <p>7. $\frac{5}{2}$</p> <p>8. $\frac{1}{2}$</p> <p>9. $\frac{1}{2}$</p> <p>10. $\frac{2}{3}$</p> <p>11. $\frac{5}{4}$</p> <p>12. $\frac{1}{2}$</p>	<p>13. $\frac{3}{2}$</p> <p>14. 4</p> <p>15. $\frac{2}{3}$</p> <p>16. $\frac{4}{3}$</p> <p>17. 2</p> <p>18. $\frac{2}{3}$</p> <p>19. $\frac{3}{4}$</p> <p>20. $\frac{1}{2}$</p> <p>21. $\frac{3}{2} = 1\frac{1}{2}$ pieces</p> <p>22. $\frac{5}{2} = 2\frac{1}{2}$ servings</p> <p>23. $\frac{7}{2} = 3\frac{1}{2}$ sections</p> <p>24. 4 cups</p>
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Step-by-Step Explanations

<p>1. Flip: $\frac{1}{2} \times \frac{2}{4} = \frac{2}{8} = \frac{1}{4}$.</p> <p>2. Flip: $\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$.</p> <p>3. Flip: $\frac{1}{2} \times \frac{5}{4} = \frac{5}{8}$.</p> <p>4. Flip: $\frac{1}{2} \times \frac{6}{5} = \frac{6}{10} = \frac{3}{5}$.</p> <p>5. Flip: $\frac{1}{2} \times \frac{7}{4} = \frac{7}{8}$.</p> <p>6. Flip: $\frac{1}{2} \times \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$.</p> <p>7. Flip: $\frac{1}{2} \times \frac{5}{6} = \frac{5}{12}$.</p> <p>8. Flip: $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$.</p> <p>9. Flip: $\frac{1}{2} \times \frac{5}{7} = \frac{5}{14}$.</p> <p>10. Flip: $\frac{1}{2} \times \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$.</p> <p>11. Flip: $\frac{1}{2} \times \frac{5}{4} = \frac{5}{8}$.</p> <p>12. Flip: $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$.</p>	<p>13. Flip: $\frac{3}{2} \times \frac{2}{3} = \frac{6}{6} = 1$.</p> <p>14. Flip: $\frac{1}{2} \times \frac{8}{2} = \frac{8}{4} = 2$.</p> <p>15. Flip: $\frac{1}{2} \times \frac{10}{5} = \frac{10}{10} = 1$.</p> <p>16. Flip: $\frac{1}{2} \times \frac{8}{3} = \frac{8}{6} = \frac{4}{3}$.</p> <p>17. Flip: $\frac{1}{2} \times \frac{12}{6} = \frac{12}{12} = 1$.</p> <p>18. Flip: $\frac{7}{12} \times \frac{8}{9} = \frac{56}{108} = \frac{14}{27}$.</p> <p>19. Flip: $\frac{3}{8} \times \frac{8}{3} = \frac{24}{24} = 1$.</p> <p>20. Flip: $\frac{11}{12} \times \frac{6}{11} = \frac{66}{132} = \frac{1}{2}$.</p> <p>21. $\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times \frac{2}{1} = \frac{6}{4} = 1\frac{2}{4} = 1\frac{1}{2}$ pieces.</p> <p>22. $\frac{5}{6} \div \frac{1}{3} = \frac{5}{6} \times \frac{3}{1} = \frac{15}{6} = 2\frac{3}{6} = 2\frac{1}{2}$ servings.</p> <p>23. $\frac{7}{8} \div \frac{1}{4} = \frac{7}{8} \times \frac{4}{1} = \frac{28}{8} = 3\frac{4}{8} = 3\frac{1}{2}$ sections.</p> <p>24. $\frac{1}{2} \div \frac{1}{8} = \frac{1}{2} \times \frac{8}{1} = \frac{8}{2} = 4$ cups.</p>
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