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.

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

Word Problems

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

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Answer Keys

1. $\boxed{\frac{4}{3}}$
2. $\boxed{\frac{3}{2}}$
3. $\boxed{\frac{5}{2}}$
4. $\boxed{\frac{6}{5}}$
5. $\boxed{\frac{7}{2}}$
6. $\boxed{\frac{2}{3}}$
7. $\boxed{\frac{5}{2}}$
8. $\boxed{\frac{1}{2}}$
9. $\boxed{\frac{1}{2}}$
10. $\boxed{\frac{2}{3}}$
11. $\boxed{\frac{5}{4}}$
12. $\boxed{\frac{1}{2}}$
13. $\boxed{\frac{3}{2}}$
14. $\boxed{4}$
15. $\boxed{\frac{2}{3}}$
16. $\boxed{\frac{4}{3}}$
17. $\boxed{2}$
18. $\boxed{\frac{2}{3}}$
19. $\boxed{\frac{3}{4}}$
20. $\boxed{\frac{1}{2}}$
21. $\boxed{\frac{3}{2} = 1\frac{1}{2} \text{ pieces}}$
22. $\boxed{\frac{5}{2} = 2\frac{1}{2} \text{ servings}}$
23. $\boxed{\frac{7}{2} = 3\frac{1}{2} \text{ sections}}$
24. $\boxed{4 \text{ cups}}$

Step-by-Step Explanations

1. Flip: $\frac{2}{3} \times \frac{2}{1} = \frac{4}{3} = 1\frac{1}{3}$.
2. Flip: $\frac{3}{4} \times \frac{2}{1} = \frac{6}{4} = \frac{3}{2}$.
3. Flip: $\frac{5}{6} \times \frac{3}{1} = \frac{15}{6} = \frac{5}{2}$.
4. Flip: $\frac{4}{5} \times \frac{3}{2} = \frac{12}{10} = \frac{6}{5}$.
5. Flip: $\frac{7}{8} \times \frac{4}{1} = \frac{28}{8} = \frac{7}{2}$.
6. Flip: $\frac{2}{9} \times \frac{3}{1} = \frac{6}{9} = \frac{2}{3}$.
7. Flip: $\frac{5}{12} \times \frac{6}{1} = \frac{30}{12} = \frac{5}{2}$.
8. Flip: $\frac{3}{8} \times \frac{4}{3} = \frac{12}{24} = \frac{1}{2}$.
9. Flip: $\frac{7}{10} \times \frac{5}{7} = \frac{35}{70} = \frac{1}{2}$.
10. Flip: $\frac{4}{9} \times \frac{3}{2} = \frac{12}{18} = \frac{2}{3}$.
11. Flip: $\frac{5}{8} \times \frac{2}{1} = \frac{10}{8} = \frac{5}{4}$.
12. Flip: $\frac{2}{7} \times \frac{7}{4} = \frac{14}{28} = \frac{1}{2}$.
13. Flip: $\frac{9}{10} \times \frac{5}{3} = \frac{45}{30} = \frac{3}{2}$.
14. Flip: $\frac{1}{2} \times \frac{8}{1} = \frac{8}{2} = 4$.
15. Flip: $\frac{3}{5} \times \frac{10}{9} = \frac{30}{45} = \frac{2}{3}$.
16. Flip: $\frac{8}{9} \times \frac{3}{2} = \frac{24}{18} = \frac{4}{3}$.
17. Flip: $\frac{5}{6} \times \frac{12}{5} = \frac{60}{30} = 2$.
18. Flip: $\frac{7}{12} \times \frac{8}{7} = \frac{56}{84} = \frac{2}{3}$.
19. Flip: $\frac{2}{3} \times \frac{9}{8} = \frac{18}{24} = \frac{3}{4}$.
20. Flip: $\frac{11}{12} \times \frac{6}{11} = \frac{66}{132} = \frac{1}{2}$.
21. $\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times \frac{2}{1} = \frac{3}{2}$, so $1\frac{1}{2}$ pieces.
22. $\frac{5}{6} \div \frac{1}{3} = \frac{5}{6} \times \frac{3}{1} = \frac{15}{6} = \frac{5}{2}$ servings.
23. $\frac{7}{8} \div \frac{1}{4} = \frac{7}{8} \times \frac{4}{1} = \frac{28}{8} = \frac{7}{2}$ sections.
24. $\frac{1}{2} \div \frac{1}{8} = \frac{1}{2} \times \frac{8}{1} = \frac{8}{2} = 4$ cups.

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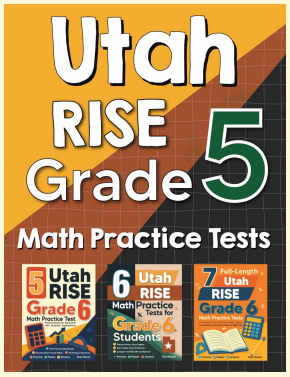

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