

4.8 Divide Fractions & Mixed Numbers

Objective: To divide fractions and mixed numbers



Reciprocal – flip the fraction

| Original # | Fraction | Reciprocal | Check |
|----------------|----------------|----------------|---|
| $\frac{3}{11}$ | $\frac{3}{11}$ | $\frac{11}{3}$ | $\frac{3}{11} \bullet \frac{11}{3} = 1$ |
| 6 | $\frac{6}{1}$ | $\frac{1}{6}$ | $\frac{6}{1} \bullet \frac{1}{6} = 1$ |
| $3\frac{1}{5}$ | $\frac{16}{5}$ | $\frac{5}{16}$ | $\frac{16}{5} \bullet \frac{5}{16} = 1$ |

To Divide Fractions & Mixed Numbers:

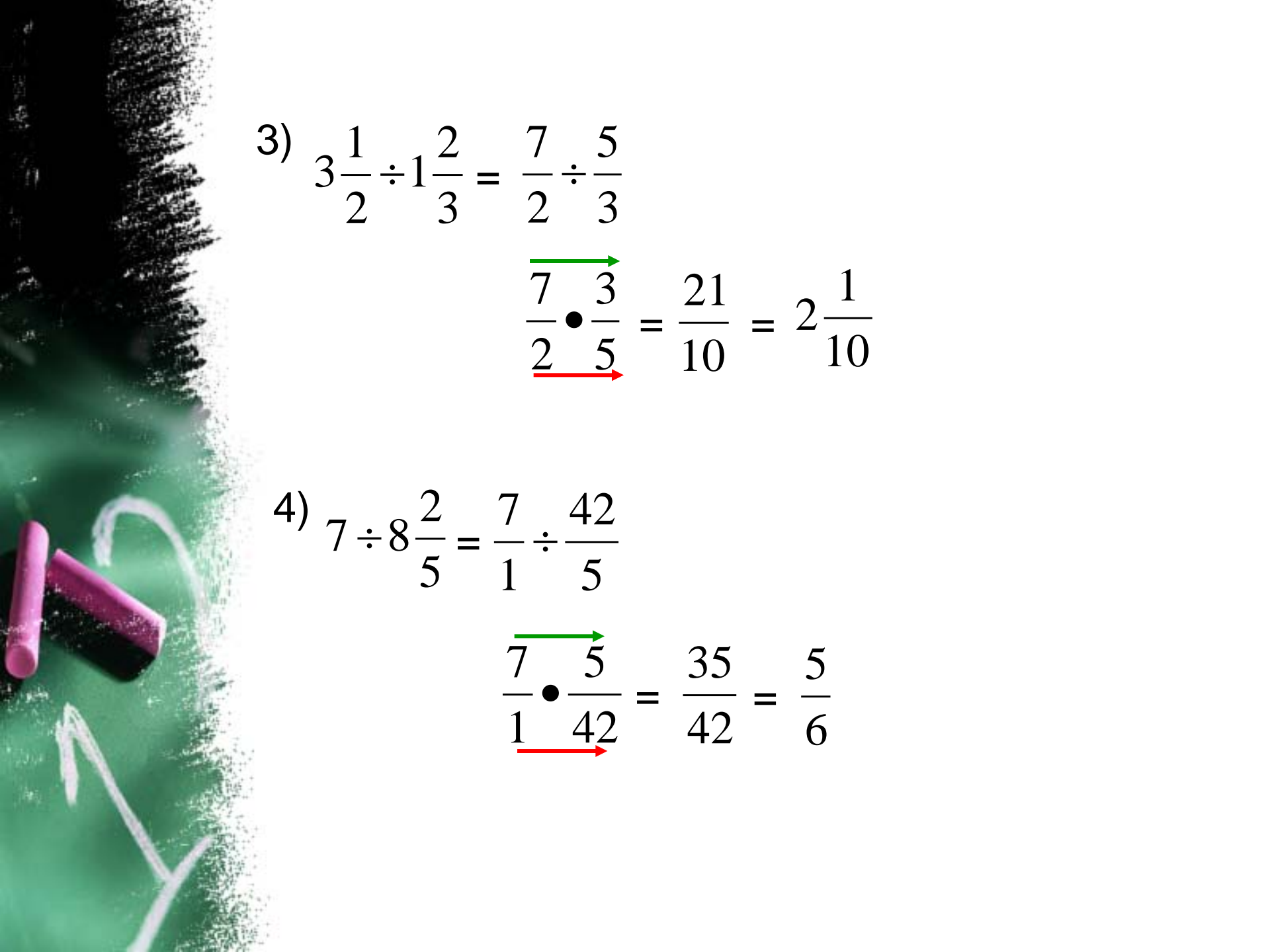
1. Convert the mixed number to an improper fraction (if needed)
2. Take the reciprocal of the second fraction and change the sign to multiplication
3. Multiply the fractions
4. Simplify



Example

$$1) \quad \frac{4}{7} \div \frac{1}{3}$$
$$\frac{4}{7} \cdot \frac{3}{1} = \frac{12}{7} = 1\frac{5}{7}$$

$$2) \quad \frac{14}{5} \div \frac{2}{3}$$
$$\frac{14}{5} \cdot \frac{3}{2} = \frac{42}{10} = 4\frac{2}{10} = 4\frac{1}{5}$$



3) $3\frac{1}{2} \div 1\frac{2}{3} = \frac{7}{2} \div \frac{5}{3}$

$$\frac{\overset{\text{green arrow}}{7} \cdot \overset{\text{green arrow}}{3}}{\underset{\text{red arrow}}{2} \cdot \underset{\text{red arrow}}{5}} = \frac{21}{10} = 2\frac{1}{10}$$

4) $7 \div 8\frac{2}{5} = \frac{7}{1} \div \frac{42}{5}$

$$\frac{\overset{\text{green arrow}}{7} \cdot \overset{\text{green arrow}}{5}}{\underset{\text{red arrow}}{1} \cdot \underset{\text{red arrow}}{42}} = \frac{35}{42} = \frac{5}{6}$$

5) Mari has 10 pounds of pasta. Each time she makes dinner, she uses $\frac{2}{3}$ pound of pasta. How many dinners can she make?

$$10 \div \frac{2}{3} = \frac{10}{1} \div \frac{2}{3}$$

$$\frac{10}{1} \cdot \frac{3}{2} = \frac{30}{2} = 15 \text{ dinners}$$

6) A 12 foot piece of rope is cut into $\frac{4}{5}$ foot sections. How many sections will you have?

$$12 \div \frac{4}{5} = \frac{12}{1} \div \frac{4}{5}$$

$$\frac{12}{1} \cdot \frac{5}{4} = \frac{60}{4} = 15 \text{ pieces of rope}$$