

**Problem of the Day**

The distance around the bases is  $4 \times 90$  feet. How many runs does a baseball team need to score before the scoring base runners have covered a mile? (1 mile = 5,280 feet)

$$\left(1\frac{7}{8}\right) \cdot \left(2\frac{1}{3}\right) \cdot 4$$

$$\frac{518}{8} \cdot \frac{7}{3} = \frac{35}{28} \cdot \frac{4}{1} = \frac{35}{2} = 17\frac{1}{2}$$

Feb 8-9:23 AM

# 5.9 Dividing Fractions and Mixed Numbers

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Reciprocals can help you divide by fractions. Two numbers are **reciprocals** if their product is 1.

Find the reciprocal.

$$\frac{1}{9}$$

$$\frac{1}{9} \cdot \square = 1 \quad \text{Think: } \frac{1}{9} \text{ of what number is 1?}$$

$$\frac{1}{9} \cdot 9 = 1 \quad \frac{1}{9} \text{ of } \frac{9}{1} \text{ is 1.}$$

The reciprocal of  $\frac{1}{9}$  is 9.

$$\frac{1}{9} \cdot \frac{9}{1}$$

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Find the reciprocal.

$$\frac{2}{3} \quad \frac{3}{2}$$

Find the reciprocal.

$$\frac{1}{4} \quad \frac{4}{1}$$

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Find the reciprocal.

$$\frac{1}{5} \quad \frac{5}{1}$$

Find the reciprocal.

$$\frac{3}{1} \quad \frac{1}{3}$$

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reciprocal.

$$\frac{24}{1} \div \frac{4}{1} = 6$$

$$\frac{24}{1} \cdot \frac{1}{4} = 6$$

Find the reciprocal.

$$\frac{24}{4} = 6$$

$$\left(2\frac{3}{4}\right) \quad \frac{11}{4} \quad \frac{4}{11}$$

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$$\frac{5}{6} \div \frac{2}{3}$$

$$\frac{\cancel{5}}{\cancel{2}6} \cdot \frac{\cancel{3}1}{2} = \frac{5}{4} = \left(1\frac{1}{4}\right)$$

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## How to divide fractions:

1. **K**eeP the first fraction.
2. Change the second fraction to its reciprocal. (**F**LIP)
3. **C**hange  $\div$  to  $\times$ .

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$$\frac{2}{3} \div 3$$

$$\frac{2}{3} \div 3 = \frac{2}{3} \cdot \frac{1}{3} \quad \text{Rewrite as multiplication using the reciprocal of } 3, \frac{1}{3}.$$

$$\frac{2}{3} \cdot \frac{1}{3} = \left(\frac{2}{9}\right)$$

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Divide. Write each answer in simplest form.

$$\frac{8}{7} \div \frac{7}{1}$$

$$\frac{8}{7} \cdot \frac{1}{7} = \frac{8}{49}$$

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$$\frac{7}{10} \div \frac{1}{5}$$

$$\frac{7}{\cancel{2}10} \cdot \frac{\cancel{5}1}{1} = \frac{7}{2} = \left(3\frac{1}{2}\right)$$

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$$\left(3\frac{2}{3}\right) \div \left(1\frac{1}{9}\right)$$

$$\frac{11}{3} \div \frac{10}{9}$$

$$\frac{11}{3} \cdot \frac{9}{10} = \frac{33}{10} = \left(3\frac{3}{10}\right)$$

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Find the reciprocal.

1.  $\frac{1}{11}$

2.  $\frac{8}{13}$

Divide. Write each answer in simplest form.

3.  $\frac{4}{7} \div 20$

4.  $3\frac{1}{2} \div 2\frac{1}{2}$

5. Rhonda put  $2\frac{3}{4}$  pounds of pecans into a  $\frac{1}{4}$ -pound bag. How many bags did Rhonda fill?

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