

Pre-Algebra  
Rational Numbers and Equations  
Example 1

Rational Numbers

Write the following fractions as decimals and the following decimals as fractions:

1.  $\frac{4}{9}$

2.  $\frac{7}{10}$

3.  $\frac{3}{7}$

4. 0.76

5. 0.21

6. 0.85

$$1. \frac{4}{9} = 9 \overline{)4.000}$$

$$\begin{array}{r} 0.444 \\ 9 \overline{)4.000} \\ \underline{36} \phantom{00} \\ 40 \phantom{0} \\ \underline{36} \phantom{0} \\ 40 \phantom{0} \end{array}$$

$$\frac{4}{9} = 0.444$$

$$2. \frac{7}{10} = 10 \overline{)7.000}$$

$$\begin{array}{r} 0.7 \\ 10 \overline{)7.000} \\ \underline{70} \phantom{00} \\ 0 \phantom{00} \end{array}$$

$$\frac{7}{10} = 0.7$$

$$3. \frac{3}{7} = 7 \overline{)3.000}$$

$$\begin{array}{r} 0.428 \\ 7 \overline{)3.000} \\ \underline{28} \phantom{00} \\ 20 \phantom{0} \\ \underline{14} \phantom{0} \\ 60 \phantom{0} \\ \underline{56} \phantom{0} \\ 4 \phantom{0} \end{array}$$

$$\frac{3}{7} = 0.428$$

$$4. 0.76 = \frac{76}{100} = \frac{76 \div 2}{100 \div 2}$$

$$= \frac{38 \div 2}{50 \div 2} = \frac{19}{25}$$

$$0.76 = \frac{19}{25}$$

$$5. 0.21 = \frac{21}{100}$$

CANNOT SIMPLIFY  
FURTHER

$$0.21 = \frac{21}{100}$$

$$6. 0.85 = \frac{85}{100} \div 5$$

$$= \frac{17}{20}$$

$$0.85 = \frac{17}{20}$$

Write the following mixed fractions as improper fractions and the following improper fractions as mixed fractions:

1.  $3\frac{4}{9}$

2.  $5\frac{10}{11}$

3.  $9\frac{3}{5}$

4.  $\frac{25}{4}$

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

6.  $\frac{27}{5}$

$$1. 3\frac{4}{9} = \frac{9(3) + 4}{9}$$

$$= \frac{27 + 4}{9} = \frac{31}{9}$$

$$3\frac{4}{9} = \frac{31}{9}$$

$$2. 5\frac{10}{11} = \frac{11 \cdot 5 + 10}{11}$$

$$= \frac{55 + 10}{11} = \frac{65}{11}$$

$$5\frac{10}{11} = \frac{65}{11}$$

$$3. 9\frac{3}{5} = \frac{5 \cdot 9 + 3}{5}$$

$$= \frac{45 + 3}{5} = \frac{48}{5}$$

$$9\frac{3}{5} = \frac{48}{5}$$

$$4. \frac{25}{4} = \frac{24}{4} + \frac{1}{4}$$

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

$$\underline{\underline{\frac{25}{4} = 6\frac{1}{4}}}$$

$$5. \frac{13}{2} = \frac{12}{2} + \frac{1}{2}$$

$$= 6\frac{1}{2}$$

$$\underline{\underline{\frac{13}{2} = 6\frac{1}{2}}}$$

$$6. \frac{27}{5} = \frac{25}{5} + \frac{2}{5}$$

$$= 5\frac{2}{5}$$

$$\underline{\underline{\frac{27}{5} = 5\frac{2}{5}}}$$