

$$44.) \quad \underline{3520} \text{ ft} = \frac{2}{3} \text{ mile}$$

$$\frac{1 \text{ mi}}{5280 \text{ ft}}$$

$$\frac{5280 \text{ ft.}}{1 \text{ mi.}}$$

$$\frac{5280 \cancel{\text{ft}}}{1 \text{ (mi.)}} \cdot \frac{2}{3 \cancel{\text{ft}}}$$



42.)

$$\frac{33 \text{ mi.}}{1 \text{ gal}} \div 1 \frac{4}{11} =$$

$$\frac{33 \text{ mi.}}{1 \text{ gal}} \cdot \frac{15}{11} = \frac{45 \text{ mi.}}{1 \text{ gal}} \times \frac{4}{5} = \underline{36 \text{ miles}}$$

$$46. \quad \frac{1}{4} \text{ min.} = \underline{\hspace{1cm}} \text{ sec}$$

$$1 \text{ min} = 60 \text{ sec}$$

$$\frac{1}{4} \cdot \frac{60}{1} = 15 \text{ seconds}$$

3-4 Dividing Rational Numbers

Rule: Instead of dividing, multiply by the reciprocal.

Reciprocal = multiplicative inverse

$$\frac{1}{4} \cdot \frac{4}{1} = 1 \quad \frac{-3}{4} \cdot \frac{-4}{3} = 1$$

$$\frac{7}{16} \quad \frac{16}{7} \neq 2\frac{2}{7} \text{ don't simplify}$$
$$-\overbrace{6}^{+} \frac{1}{3}$$
$$-\frac{19}{3} = -\frac{3}{19}$$

$$2a. \frac{1}{9} \div \frac{5}{12}$$
$$\frac{1}{\cancel{9}^3} \cdot \frac{\cancel{12}^4}{5} = \frac{4}{15}$$

2b. $\frac{3}{7} \div 8$

$\frac{3}{7} \times \frac{1}{8} = \left(\frac{3}{56}\right)$

$\frac{1}{8} \cdot \frac{18^5}{7} = \left(\frac{5}{7}\right)$

$\frac{5}{8} \div -\frac{3}{4} = \frac{5}{8} \cdot -\frac{4}{3} = \left(-\frac{5}{6}\right)$

$$\frac{3}{4} \div \frac{11}{1} = \frac{3}{4} \cdot \frac{1}{11} = \frac{3}{44}$$

$$\frac{-1}{7} \div 12$$
$$\frac{-1}{7} \cdot \frac{1}{12} = \left(\frac{-1}{84} \right)$$

$$3. \quad -4\frac{2}{3} \div 3\frac{1}{9} = -\frac{14}{3} \div \frac{28}{9} =$$
$$\frac{-\cancel{14}^1}{\cancel{3}_1} \times \frac{\cancel{9}^3}{\cancel{28}_2} = \frac{-3}{2}$$

$$6\frac{3}{8} \div -4\frac{1}{4}$$

$$\frac{3\cancel{5}1}{\cancel{2}8} \cdot \frac{4\cancel{1}}{\cancel{1}2} = \quad = \frac{3}{2} = 1\frac{1}{2}$$

$$-\frac{34}{5} \div \frac{12}{5} = \frac{\cancel{34}^{17}}{\cancel{5}_1} \cdot \frac{\cancel{5}_1 \cancel{12}_6}{\cancel{12}_2} = \frac{17}{6} \cdot 2\frac{5}{6} = 2\frac{5}{6}$$

$$\frac{5ab}{6} \div \frac{10b}{7}$$

$$\frac{\cancel{5}^1 a \cancel{b}^1}{6} \cdot \frac{7}{\cancel{10}_2 \cancel{b}^1}$$

$$\frac{7a}{12}$$

common factor

factor
× factor
product

$$\begin{array}{r} 12 \\ 6 \quad 2 \\ 3 \quad 4 \\ 1 \quad 12 \end{array}$$

$$\begin{array}{r} 5 \\ 1 \cdot 5 \\ 10 \\ 1, 2 \cdot 5 \cdot 10 \end{array}$$

$$\frac{mn}{4} \div \frac{m}{8}$$

Handwritten work in red ink:

$$\frac{\cancel{m}n}{\cancel{1}4} \cdot \frac{8\cancel{2}}{\cancel{m}\cancel{1}} = \frac{2n}{1}$$