3.7 Multiplication and Division with Mixed Numbers

1. Multiplying and Dividing Mixed Numbers: To multiply or divide mixed numbers, convert each mixed number to an equivalent improper fraction, then complete the multiplication and/or division. Be sure to divide out common factors before you multiply.

Example: Simplify.

$2\frac{1}{3} \bullet 6\frac{3}{4} = \frac{2 \bullet 3 + 1}{3} \bullet \frac{4 \bullet 6 + 3}{4}$ convert to improper fractions

$= \frac{7}{3} \bullet \frac{27}{4}$ note that 3 is a common factor

$= \frac{7}{3 \div 3} \bullet \frac{27 \div 3}{4}$ divide out common factors

$= \frac{7}{1} \bullet \frac{9}{4} = \frac{63}{4}$ multiply

If your answer is an improper fraction, you may leave it improper or change it to a mixed number, whichever you prefer.

Example: Simplify each of the following.

a. $3\frac{1}{2} \bullet 2\frac{1}{6}$

b. $2\frac{3}{4} \bullet 3\frac{1}{5}$

c. $\frac{3}{8} \bullet 5\frac{1}{3}$

d. $\frac{7}{8} \bullet 6 \bullet 5\frac{1}{3}$

e. $1\frac{3}{5} \bullet 2\frac{4}{5}$

f. $2\frac{2}{9} \bullet \left(2\frac{1}{4} \div 3 \right)$