

5.3 Multiply Mixed Numbers

Write each mixed number as an improper fraction:

$$\begin{array}{lcl}
 3\frac{2}{5} & \xrightarrow{3 \cdot 5 + 2} & \frac{17}{5} \\
 2\frac{1}{6} & \xrightarrow{2 \cdot 6 + 1} & \frac{13}{6} \\
 5\frac{3}{7} & \xrightarrow{\quad} & \frac{38}{7} \\
 1\frac{9}{10} & \xrightarrow{\quad} & \frac{19}{10}
 \end{array}$$

Is it possible to multiply mixed numbers in mixed number form?

ex. $3\frac{3}{5} \times 2\frac{1}{6}$

use area multiplication model:

	3	+	$\frac{3}{5}$
2	6		$\frac{2}{1} \cdot \frac{3}{5}$
+			$\frac{6}{5} = 1\frac{1}{5}$
$\frac{1}{6}$	$\frac{1}{2} \cdot \frac{3}{1}$ $\frac{1}{2}$		$\frac{1}{6} \cdot \frac{3}{5}$ $\frac{1}{10}$

easier way:

$$\begin{array}{l}
 3\frac{3}{5} \times 2\frac{1}{6} \\
 \frac{3 \cdot 18}{5} \times \frac{13}{6} \\
 \frac{39}{5} \times \frac{13}{6} \\
 7\frac{8}{10} = 7\frac{4}{5} = \frac{39}{5}
 \end{array}$$

ex. $2\frac{2}{3} \times 1\frac{1}{2}$

$$\begin{array}{l}
 2\frac{2}{3} \times 1\frac{1}{2} \\
 \frac{4}{3} \times \frac{3}{2} \\
 \frac{4}{1} \\
 4
 \end{array}$$

ex. $2\frac{1}{4} \times \frac{8}{15}$

$$\begin{array}{l}
 2\frac{1}{4} \times \frac{8}{15} \\
 \frac{9}{4} \times \frac{8}{15} \\
 \frac{16}{5} \\
 3\frac{1}{5}
 \end{array}$$

ex. $\frac{2}{9} \times 2\frac{1}{3}$

$$\begin{array}{l}
 \frac{2}{9} \times 2\frac{1}{3} \\
 \frac{2}{9} \times \frac{7}{3} \\
 \frac{14}{27}
 \end{array}$$

ex. $2\frac{2}{5} \times 3\frac{3}{4}$

$$\begin{array}{l}
 2\frac{2}{5} \times 3\frac{3}{4} \\
 \frac{12}{5} \times \frac{15}{4} \\
 9
 \end{array}$$