

## 2.3 DIVIDING MIXED NUMBERS

ESSENTIAL QUESTION:

How do you divide mixed numbers?

### STEPS FOR DIVIDING MIXED NUMBERS

- 1) Bounce the ball (change mixed number to improper fraction)
- 2) Keep the first fraction.
- 3) Change division to multiplication.
- 4) Flip the 2nd fraction. (Find the reciprocal.)

### EXAMPLE 1

Divide. Write in simplest form.

1)  $2\frac{1}{4} \div \frac{3}{8}$

$2\frac{1}{4} \div \frac{3}{8}$

$\frac{9}{4} \div \frac{3}{8}$

$\frac{9}{4} \cdot \frac{8}{3} = 6$

2)  $3\frac{5}{6} \div 1\frac{2}{3}$

$3\frac{5}{6} \div 1\frac{2}{3}$

$\frac{23}{6} \div \frac{5}{3}$

$\frac{23}{6} \cdot \frac{3}{5} = \frac{23}{10}$  or  $2\frac{3}{10}$

### ON YOUR OWN

1)  $1\frac{3}{7} \div \frac{2}{3}$

$1\frac{3}{7} \div \frac{2}{3}$

$\frac{10}{7} \div \frac{2}{3}$

$\frac{10}{7} \cdot \frac{3}{2} = \frac{15}{7}$

2)  $2\frac{1}{6} \div \frac{3}{4}$

$2\frac{1}{6} \div \frac{3}{4}$

$\frac{13}{6} \div \frac{3}{4}$

$\frac{13}{6} \cdot \frac{4}{3} = \frac{26}{9}$

3)  $8\frac{1}{4} \div 1\frac{1}{2}$

$8\frac{1}{4} \div 1\frac{1}{2}$

$\frac{33}{4} \div \frac{3}{2}$

$\frac{33}{4} \cdot \frac{2}{3} = \frac{11}{2}$

4)  $6\frac{4}{5} \div 2\frac{1}{8}$

$6\frac{4}{5} \div 2\frac{1}{8}$

$\frac{34}{5} \div \frac{17}{8}$

$\frac{34}{5} \cdot \frac{8}{17} = \frac{16}{5}$

### EXAMPLE 2

One serving of tortilla soup is  $1\frac{2}{3}$  cups. A restaurant cook makes 50 cups of soup. Is there enough to serve 35 people? Explain.

$50 \div 1\frac{2}{3}$

$50 \div \frac{5}{3}$

$50 \cdot \frac{3}{5} = 30$

No there is not because the 50 cups of soup will only serve 30 people



**EXAMPLE 3**

Evaluate the expression. Write answer in simplest form.

1)  $5\frac{1}{4} \div 1\frac{1}{8} - \frac{2}{3}$

$$\begin{array}{r} 5\frac{1}{4} \div 1\frac{1}{8} - \frac{2}{3} \\ \frac{21}{4} \div \frac{9}{8} - \frac{2}{3} \\ \frac{21}{4} \cdot \frac{8}{9} - \frac{2}{3} \\ \frac{14}{3} - \frac{2}{3} \\ \frac{12}{3} = 4 \end{array}$$

2)  $1\frac{1}{2} \div \frac{1}{6} - \frac{7}{8}$

$$\begin{array}{r} 1\frac{1}{2} \div \frac{1}{6} - \frac{7}{8} \\ \frac{3}{2} \div \frac{1}{6} - \frac{7}{8} \\ \frac{3}{2} \cdot \frac{6}{1} - \frac{7}{8} \\ 9 - \frac{7}{8} \\ \frac{72}{8} - \frac{7}{8} \\ \frac{65}{8} \end{array}$$

3)  $3\frac{1}{3} \div \frac{5}{6} + \frac{8}{9}$

$$\begin{array}{r} 3\frac{1}{3} \div \frac{5}{6} + \frac{8}{9} \\ \frac{10}{3} \div \frac{5}{6} + \frac{8}{9} \\ \frac{10}{3} \cdot \frac{6}{5} + \frac{8}{9} \\ 4 + \frac{8}{9} \\ 4\frac{8}{9} \end{array}$$

4)  $\frac{2}{5} + 2\frac{4}{5} \div 1\frac{3}{4}$

$$\begin{array}{r} \frac{2}{5} + 2\frac{4}{5} \div 1\frac{3}{4} \\ \frac{2}{5} + \frac{14}{5} \div \frac{7}{4} \\ \frac{2}{5} + \frac{14}{5} \cdot \frac{4}{7} \\ \frac{2}{5} + \frac{8}{5} \\ \frac{10}{5} = 2 \end{array}$$

5)  $\frac{2}{3} - 1\frac{4}{7} \div 4\frac{5}{7}$

$$\begin{array}{r} \frac{2}{3} - 1\frac{4}{7} \div 4\frac{5}{7} \\ \frac{2}{3} - \frac{11}{7} \div \frac{33}{7} \\ \frac{2}{3} - \frac{11}{7} \cdot \frac{7}{33} \\ \frac{2}{3} - \frac{1}{3} \\ \frac{1}{3} \end{array}$$