

Lesson 3-8 Notes

Mixed Numbers and Improper Fractions

Review:

Write a fraction that is equivalent to $\frac{3}{4}$

$$\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \frac{15}{20}$$

Simplify the fraction $\frac{16}{20}$

$$\frac{16}{20} = \frac{8}{10} = \frac{4}{5}$$

$$\frac{16}{20} = \frac{4}{5}$$

Improper Fraction	A fraction with a numerator that is greater than or equal to its denominator.	$\frac{999}{1}$ $\frac{5}{3}$ $\frac{6}{6}$
Mixed Number ↑ Whole # and fraction	The sum of a whole number and a fraction.	$4\frac{10}{15}$ $1\frac{2}{3}$ $10\frac{1}{2}$

Write the mixed number and improper fraction represented by each model below.



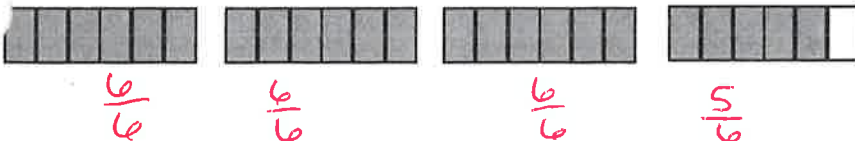
Improper Fraction: $\frac{2}{2} + \frac{2}{2} + \frac{1}{2} = \frac{5}{2}$

Mixed Number: $1 + 1 + \frac{1}{2} = 2\frac{1}{2}$



Improper Fraction: $\frac{3}{3} + \frac{3}{3} + \frac{1}{3} = \frac{7}{3}$

Mixed Number: $1 + 1 + \frac{1}{3} = 2\frac{1}{3}$

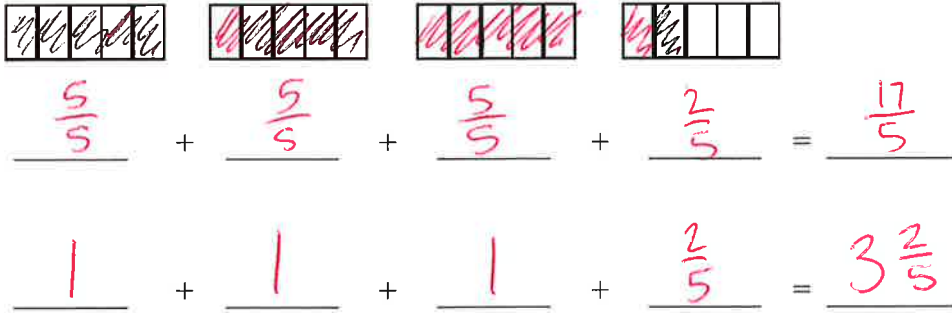


Improper Fraction: $\frac{23}{6}$

Mixed Number: $3\frac{5}{6}$

Improper Fractions

$$\frac{17}{5}$$



Process:

Improper Fraction \rightarrow Mixed Number

$$\frac{17}{5} \rightarrow$$

$$3 \text{ r } 2$$

$$5 \overline{)17}$$

$$\underline{-15}$$

$$2$$

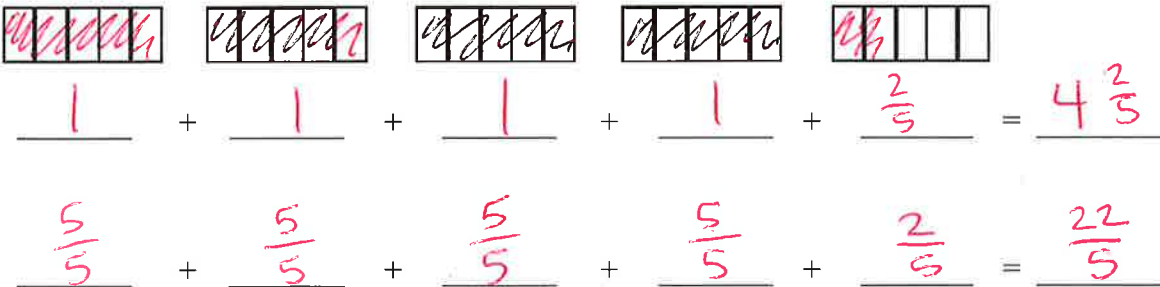
Step 1: Divide the numerator by the denominator. $17 \div 5 = 3 \text{ r } 2$

Step 2: Write the quotient (3) as your whole number and the remainder (2) becomes the numerator over the denominator of the original improper fraction (5).

$$3\frac{2}{5}$$

Mixed Numbers

$$4\frac{2}{5}$$



Process:

Mixed Numbers \rightarrow Improper Fractions

$$4 \begin{array}{l} + \\ \times \end{array} \begin{array}{l} 2 \\ 5 \end{array}$$

Step 1: Multiply the denominator by the whole number. $4 \times 5 = 20$

Step 2: Add the numerator to this product. $20 + 2 = 22$

Step 3: Place the sum over the denominator.

$$\frac{22}{5}$$

You Try!

Convert these mixed numbers to improper fractions.

$$4\frac{1}{5} = \frac{21}{5}$$

$$3\frac{6}{7} = \frac{27}{7}$$

$$10\frac{2}{4} = \frac{42}{4}$$

$$1\frac{5}{12} = \frac{17}{12}$$

Convert these improper fractions to mixed numbers.

$$\frac{10}{4} \quad 4 \overline{)10} \begin{array}{r} 2 \text{ r } 2 \\ -8 \\ \hline 2 \end{array} \quad 2\frac{2}{4} = \boxed{2\frac{1}{2}}$$

$$\frac{67}{4} \quad 4 \overline{)67} \begin{array}{r} 16 \text{ r } 3 \\ -4 \\ \hline 27 \\ -24 \\ \hline 3 \end{array} \quad \boxed{16\frac{3}{4}}$$

$$\frac{18}{6} \quad 6 \overline{)18} \begin{array}{r} 3 \\ -18 \\ \hline 0 \end{array} \quad \boxed{3}$$

$$\frac{49}{5} \quad 5 \overline{)49} \begin{array}{r} 9 \text{ r } 4 \\ -45 \\ \hline 4 \end{array} \quad \boxed{9\frac{4}{5}}$$