

AIM: 5-2 What are Mixed Numbers and Improper Fractions?

Name _____

Date Key
Math 6 - Period _____

Warm-up:

a) Write 3 equivalent fractions for $\frac{6}{9}$. $\frac{2}{3}, \frac{12}{18}, \frac{18}{27} \dots$	b) Write the fraction $\frac{15}{45}$ in simplest form. $\frac{15 \div 3}{45 \div 3} = \frac{5 \div 5}{15 \div 5} = \boxed{\frac{1}{3}}$
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Vocabulary:

1. **Fraction** - A number in the form of $\frac{a}{b}$, where a is the *numerator*, and b is the *denominator*.
2. **Equivalent Fractions** - Fractions that represent the same part-to-whole relationship.
3. **Mixed Number** - A fraction with a whole number part and a fraction part. **Example:** $5\frac{1}{2}$
4. **Proper Fraction** - A fraction whose numerator is less than the denominator. **Example:** $\frac{1}{2}$
5. **Improper Fraction** - A fraction whose numerator is greater than or equal to its denominator. (**Example:** $\frac{5}{3}$)



Let's Investigate: Converting between mixed numbers and improper fractions.

Writing Mixed Numbers as Improper Fractions

1. Multiply the whole number and the denominator.
2. Then, add the numerator. "Make a Mixed # Mad"
3. Write the sum over the denominator.

M A D
* + denominator

EXAMPLES:

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

$$4\frac{7}{8} = \frac{39}{8}$$

Writing Improper Fractions as Mixed Numbers

1. Divide the numerator by the denominator.
2. Write the remainder as a fraction. ('Around the World')
3. Simplify (reduce) if possible.

* Now we find
our exam
scores!

EXAMPLES:

$$\frac{7}{3} = \underline{\underline{2\frac{1}{3}}}$$

$$\frac{21}{15} = 1\frac{6 \div 3}{15 \div 3} = \underline{\underline{1\frac{2}{5}}}$$

Now You Try!

- 1) Write each mixed number as an improper fraction.

a) $3\frac{1}{2} = \frac{7}{2}$

b) $2\frac{2}{5} = \frac{12}{5}$

c) $14\frac{2}{3} = \frac{44}{3}$

$$\begin{array}{r} 14 \\ \times 3 \\ \hline 42 \end{array}$$

- 2) During a football-throwing contest, Owen threw the ball $49\frac{2}{3}$ feet. Dylan threw the ball 51 feet. Who threw the ball $\frac{153}{3}$ feet? Show work to justify your answer.

Owen: $49\frac{2}{3} = \frac{149}{3}$

Dylan: $3\overline{)51}$

$$\begin{array}{r} 2 \\ 49 \\ \times 3 \\ \hline 147 \end{array}$$

AIM: 5-2 What are Mixed Numbers and Improper Fractions?

3) Write each improper fraction as a mixed number or whole number.

a) $\frac{17}{3} = \underline{\underline{5\frac{2}{3}}}$

$$\begin{array}{r} 5 \\ 3 \overline{)17} \\ \underline{-15} \\ 2 \end{array}$$

b) $\frac{40}{8} = \underline{\underline{5}}$

$$\begin{array}{r} 5 \\ 8 \overline{)40} \end{array}$$

c) $\frac{83}{9} = \underline{\underline{9\frac{2}{9}}}$

$$\begin{array}{r} 9 \\ 9 \overline{)83} \\ \underline{-81} \\ 2 \end{array}$$

4) Mia timed her speech at $\frac{123}{3}$ minutes. She cannot go over 40 minutes. Should she add more to her speech or cut some lines? Explain in 1-2 complete sentences.

$$\begin{array}{r} 41 \\ 3 \overline{)123} \end{array}$$

Mia's speech is 41 minutes long, so she should cut her speech by 1 minute.

5) Charlie accidentally erased the numerator of the fraction part of a mixed number. He knows that its whole number part is 45 and the denominator of the fraction is 9. He also knows that when the mixed number is written as an improper fraction, its numerator is 412. What is the numerator that Charlie erased?

$$45\frac{?}{9} = \frac{412}{9}$$

$$\begin{array}{r} 4 \\ 45 \\ \times 9 \\ \hline 405 \end{array} \quad \begin{array}{r} 412 \\ - 405 \\ \hline 7 \end{array}$$

Numerator is 7

1) Write $\frac{22}{4}$ as a mixed number in simplest form.

$$4 \overline{) 22} \quad 5 \frac{2}{4} = \boxed{5 \frac{1}{2}}$$

The image shows a long division problem where 4 divides into 22 to get 5 with a remainder of 2. This is then converted to the mixed number 5 and 2/4, which is simplified to 5 and 1/2, enclosed in a hand-drawn box.

2) Write $3 \frac{4}{7}$ as an improper fraction.

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$$\boxed{\frac{25}{7}}$$