Changing Mixed Numbers to Improper Fractions

An important skill in multiplication and division of fractions is changing a mixed number, such as $2\frac{1}{4}$, to an improper fraction. You know that one whole equals $\frac{4}{4}$ and that 2 equals $\frac{8}{4}$. Adding the extra $\frac{1}{4}$, you get $\frac{9}{4}$.

$$\frac{4}{4} + \frac{4}{4} + \frac{1}{4} = \frac{9}{4}$$

Study the next examples to see how to change mixed numbers to improper fractions.

EXAMPLE 1 Change $2\frac{1}{4}$ to an improper fraction.

STEP 1	Multiply the denominator, 4, by the whole number, 2.	$4 \times 2 = 8$
STEP 2	Add the numerator, 1, to 8.	$8 + 1 = 9$
STEP 3	Write the total, 9, over the denominator, 4.	$2\frac{1}{4} = \mathbf{\frac{9}{4}}$

EXAMPLE 2 Change $5\frac{2}{3}$ to an improper fraction.

STEP 1	Multiply the denominator, 3, by the whole number, 5.	$3 \times 5 = 15$
STEP 2	Add the numerator, 2, to 15.	$15 + 2 = 17$
STEP 3	Write the total, 17, over the denominator, 3.	$5\frac{2}{3} = \mathbf{\frac{17}{3}}$

Change each mixed number to an improper fraction.

1. $2\frac{3}{4} =$ $1\frac{4}{7} =$ $5\frac{1}{3} =$ $6\frac{2}{7} =$ $4\frac{3}{5} =$

2. $9\frac{1}{2} =$ $7\frac{5}{8} =$ $2\frac{9}{10} =$ $8\frac{3}{4} =$ $3\frac{5}{9} =$

3. $10\frac{1}{3} =$ $11\frac{2}{5} =$ $4\frac{5}{12} =$ $6\frac{7}{8} =$ $12\frac{1}{4} =$

4. $3\frac{4}{5} =$ $6\frac{1}{7} =$ $9\frac{3}{8} =$ $2\frac{1}{12} =$ $5\frac{4}{15} =$