PreAlgebra
Skill-Builder #SMN–2
Subtracting Signed Mixed Numbers

Recall that when adding two numbers with **different signs**, we must take the **difference of their absolute values**, and **keep the sign of the number with the larger absolute value**.

This rule also applies when we subtract signed mixed numbers. Make sure to subtract the fraction part of the mixed numbers first before subtracting the whole number part. To subtract the fraction part of the mixed numbers, you must make sure that the denominators are the same. If not, we must first find the LCD (least common denominator). At times, it is necessary to borrow from the whole number part. When that happens, rewrite the mixed number as the sum of a whole number part and an improper fraction.

Example 1

Simplify: $-15\frac{2}{3} + 7\frac{1}{6}$

$-15\ \frac{2}{3}$
$+\ 7\ \frac{1}{6}$

Different Signs! SUBTRACT their absolute values →

$-15\ \frac{4}{6}$
$+\ 7\ \frac{1}{6}$

Keep the sign of the mixed number with the larger absolute value!

$-\ 8\ \frac{3}{6}$ **Reduce!** $-\ 8\ \frac{1}{2}$

Answer: $-8\ \frac{1}{2}$

Example 2

Simplify: $45\frac{2}{3} - 38\frac{3}{4}$

Borrow! $45\frac{8}{12} = 44 + 1\frac{8}{12} = 44\frac{20}{12}$

$+45\frac{2}{3}$
$-38\frac{3}{4}$

Different Signs! SUBTRACT their absolute values →

$+45\frac{8}{12} = +44\frac{20}{12}$
$-38\frac{9}{12} = -38\frac{9}{12}$

Keep the sign of the mixed number with the larger absolute value!

$+6\ \frac{11}{12}$

Answer: $6\ \frac{11}{12}$

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Simplify the following.

1. $-37\frac{2}{5} + 17\frac{3}{10}$

2. $25\frac{11}{12} - 9\frac{5}{8}$

3. $10\frac{7}{12} - 18\frac{4}{15}$

4. $-58\frac{2}{3} + 43\frac{7}{8}$

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Answers

1. $-20\frac{1}{10}$

2. $16\frac{7}{24}$

3. $-7\frac{41}{60}$

4. $-14\frac{19}{24}$

Prepared by Susan Vo, Fall 2010