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Module 6 Computational Fluency of Fractions
Lesson 4 Adding and Subtracting Mixed Numbers

Challenge Problems

6.4

Set 1

1

Write and solve an addition problem of two mixed numbers that has a sum which is a whole number.

Set 2

1

Write a subtraction problem using two mixed numbers that has a proper fraction as the solution.

2

Explain when to regroup in a subtraction problem of two mixed numbers. Write an example and solve.

Possible Answers

Set 1

1. In order for the sum of two mixed numbers to be a whole number, the sum of the fraction parts must be one. You can make that happen by having the sum of the numerators be equal to the common denominator. For example,

$$4\frac{2}{3} + 1\frac{1}{3} = 5\frac{3}{3} = 6 \text{ or } 2\frac{3}{5} + 5\frac{2}{5} = 7\frac{5}{5} = 8.$$

Set 2

1. First, make the whole number parts equal. Make the fraction part of the minuend greater than the fraction part of the subtrahend. For example,

$$3\frac{5}{8} - 3\frac{1}{8} = \frac{4}{8} = \frac{1}{2}. \text{ Another way is to make the minuend's whole number one}$$

greater than the subtrahend's whole number part, and the fraction part of the minuend less than the fraction part of the subtrahend. For example,

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

2. Assuming the mixed numbers have a common denominator, you know you have to regroup when the numerator of the subtrahend is greater than the numerator of the minuend. For example, $4\frac{1}{8} - 1\frac{5}{8} = 3\frac{9}{8} - 1\frac{5}{8} = 2\frac{4}{8} = 2\frac{1}{2}$. You also have to regroup when the minuend is a whole number. The whole number can be renamed as a whole number and a fraction by taking one away from the original whole number and renaming that whole as a number over itself.

$$\text{For example, } 10 - 7\frac{4}{9} = 9\frac{9}{9} - 7\frac{4}{9} = 2\frac{5}{9}.$$