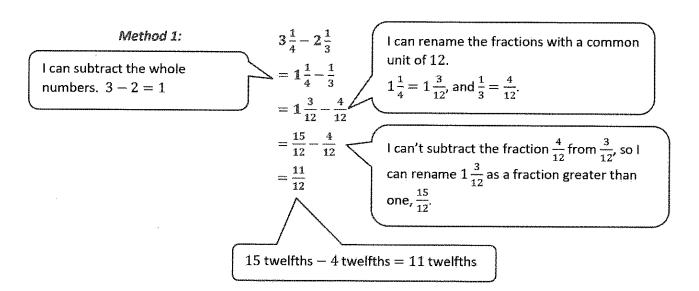## G5-M3-Lesson 12

1.  Subtract. ◄── I can subtract these mixed numbers using a variety of strategies.

a.  $3\frac{1}{4} - 2\frac{1}{3}$ ◄── I can rename these fractions as twelfths in order to subtract.

**Method 1:**

$$3\frac{1}{4} - 2\frac{1}{3}$$

I can rename the fractions with a common unit of 12.

$1\frac{1}{4} = 1\frac{3}{12}$, and $\frac{1}{3} = \frac{4}{12}$.

I can subtract the whole numbers. $3 - 2 = 1$

$$= 1\frac{1}{4} - \frac{1}{3}$$

$$= 1\frac{3}{12} - \frac{4}{12}$$

$$= \frac{15}{12} - \frac{4}{12}$$

I can't subtract the fraction $\frac{4}{12}$ from $\frac{3}{12}$, so I can rename $1\frac{3}{12}$ as a fraction greater than one, $\frac{15}{12}$.

$$= \frac{11}{12}$$

15 twelfths − 4 twelfths = 11 twelfths

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**Method 2:**

Or, I could decompose $3\frac{1}{4}$ into two parts with a number bond.

$$3\frac{1}{4} - 2\frac{1}{3}$$

Number bond: 3 and $\frac{1}{4}$

Now, I can easily subtract $2\frac{1}{3}$ from 3.

$3 - 2\frac{1}{3} = \frac{2}{3}$

After subtracting $2\frac{1}{3}$, I can add the remaining fractions, $\frac{2}{3}$ and $\frac{1}{4}$.

$$= \frac{2}{3} + \frac{1}{4}$$

$$= \frac{8}{12} + \frac{3}{12}$$

I can rename these fractions as twelfths in order to add.

$\frac{2}{3} = \frac{8}{12}$, and $\frac{1}{4} = \frac{3}{12}$.

$$= \frac{11}{12}$$

The sum of 8 twelfths and 3 twelfths is 11 twelfths.

Or, I could rename both mixed numbers as fractions greater than one.

$3\frac{1}{4} = \frac{13}{4}$, and $2\frac{1}{3} = \frac{7}{3}$.

**Method 3:**

And, I can rename the fractions greater than one using the common unit twelfths.

$\frac{13}{4} = \frac{39}{12}$, and $\frac{7}{3} = \frac{28}{12}$.

$3\frac{1}{4} - 2\frac{1}{3}$

$= \frac{13}{4} - \frac{7}{3}$

$= \frac{39}{12} - \frac{28}{12}$

$= \frac{11}{12}$

39 twelfths minus 28 twelfths is equal to 11 twelfths.

b. $19\frac{1}{3} - 4\frac{6}{7}$

**Method 1:**

$19\frac{1}{3} - 4\frac{6}{7}$

I need to make a common unit before subtracting. I can rename these fractions using a denominator of 21.

I can subtract the whole numbers, $19 - 4 = 15$

$= 15\frac{1}{3} - \frac{6}{7}$

$= 15\frac{7}{21} - \frac{18}{21}$

$= 14\frac{28}{21} - \frac{18}{21}$

$= 14\frac{10}{21}$

$15\frac{7}{21} = 14 + 1 + \frac{7}{21}$

$= 14 + \frac{21}{21} + \frac{7}{21}$

$= 14 + \frac{28}{21}$

$= 14\frac{28}{21}$

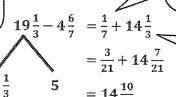I can't subtract $\frac{18}{21}$ from $\frac{7}{21}$, so I rename $15\frac{7}{21}$ as $14\frac{28}{21}$.

**Method 2:**

I want to subtract $4\frac{6}{7}$ from 5, so I can decompose $19\frac{1}{3}$ into two parts with this number bond.

$5 - 4\frac{6}{7} = \frac{1}{7}$

Now, I need to combine $\frac{1}{7}$ with the remaining part, $14\frac{1}{3}$.

$19\frac{1}{3} - 4\frac{6}{7} = \frac{1}{7} + 14\frac{1}{3}$

$= \frac{3}{21} + 14\frac{7}{21}$

$= 14\frac{10}{21}$

$14\frac{1}{3}$       $5$

In order to add, I'll rename these fractions using a common denominator of 21.

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