Unit 4, Lesson 19

Compose and Decompose to Add and Subtract

Let's compose and decompose units to add and subtract.

Warm-up

Number Talk: Subtract Fractions

Find the value of each expression mentally.

- $2\frac{3}{4} - 1\frac{1}{4}$
- $1\frac{1}{4} - \frac{3}{4}$
- $5\frac{1}{8} - 2\frac{3}{8}$
- $3\frac{2}{10} - 2\frac{7}{10}$

Activity 1

Find and Check Sums

1. Find the value of each sum.

a

$$\begin{array}{r} 8,299 \\ +\ \ 1 \\ \hline \end{array}$$

b

$$\begin{array}{r} 8,299 \\ +\ \ 11 \\ \hline \end{array}$$

c

$$\begin{array}{r} 8,299 \\ +\ \ 111 \\ \hline \end{array}$$

d

$$\begin{array}{r} 8,299 \\ +\ 1,111 \\ \hline \end{array}$$

2. Use the expanded form of both 8,299 and 1,111 to check the value you found for the last sum.

3. Each computation has at least one error. Find the errors and show the correct calculation.

a

$$\begin{array}{r} {\scriptstyle 1} \\ 12{,}309 \\ +\ \ 4{,}567 \\ \hline 16{,}866 \end{array}$$

b

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 32{,}216 \\ +\ \ 789 \\ \hline 33{,}995 \end{array}$$

c

$$\begin{array}{r} {\scriptstyle 1} \\ 642{,}999 \\ +\ \ 48{,}111 \\ \hline 690{,}000 \end{array}$$

d

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 18{,}999 \\ +\ \ 9{,}999 \\ \hline 27{,}998 \end{array}$$

Activity 2

Priya's Family Heirlooms

Priya's mom wore an heirloom bracelet at her wedding in 1996. The bracelet was made in 1947.

Priya subtracts to find out how old the bracelet was when her parents were married.

$$\begin{array}{r} 8\ 16 \\ 1,\ 9\ \cancel{9}\ \cancel{6} \\ -\ 1,\ 9\ 4\ 7 \\ \hline 4\ 9 \end{array}$$

Priya learns that her grandmother also wore the bracelet at her wedding 24 years earlier.

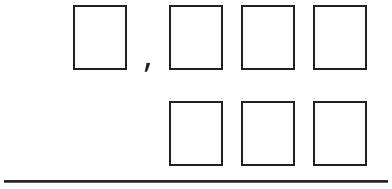
Priya subtracts to find out when her grandparents were married.

$$\begin{array}{r} 1,\ 9\ 9\ 6 \\ -\ \ \ \ \ \ 2\ 4 \\ \hline 1,\ 9\ 7\ 2 \end{array}$$

1. Are both calculations correct? Why does one calculation have some numbers crossed out and some new numbers, but the other one does not? Explain your reasoning.

2. Priya's grandmother wore an heirloom necklace and earring set that was 63 years old when she was married in 1972.

   a. Does Priya need to decompose a unit if she uses the standard algorithm to subtract $1972 - 63$? Explain your reasoning.

   b. Use the standard algorithm to subtract $1972 - 63$. Find the year the necklace was made.

3. Create a subtraction problem that doesn't require decomposing a unit to subtract. Then solve the problem.