Essential Question **How Do You Subtract Across Zeros?**
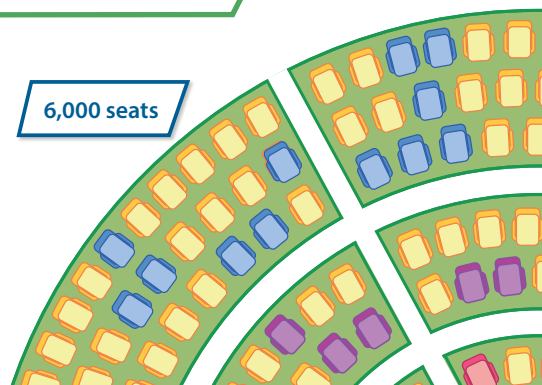
A

A music hall is hosting a concert. The hall sells 4,678 tickets to the show. How many tickets are still available?
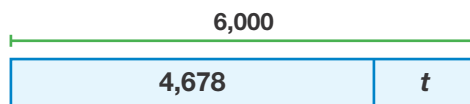
When subtracting from a number with zeros, you may need to regroup several places before subtracting.

Let t equal the number of available tickets.

6,000 seats

6,000	
4,678	t

$t = 6,000 - 4,678$

Estimate: $6,000 - 4,700 = 1,300$

B Regroup.

$\begin{array}{r} 6{,}000 \\ -\,4{,}678 \end{array}$ Because of the zeros, you need to start regrouping from the thousands.

$\begin{array}{r} \overset{5\ \ 10}{6{,}000} \\ -\,4{,}678 \end{array}$ 6 thousands = 5 thousands + 10 hundreds

$\begin{array}{r} \overset{5\ \ 9\ 10}{6{,}000} \\ -\,4{,}678 \end{array}$ 10 hundreds = 9 hundreds + 10 tens

$\begin{array}{r} \overset{5\ \ 9\ 9\ 10}{6{,}000} \\ -\,4{,}678 \end{array}$ 10 tens = 9 tens + 10 ones

C Subtract.

$\begin{array}{r} \overset{5\ \ 9\ 9\ 10}{6{,}000} \\ -\,4{,}678 \\ \hline 1{,}322 \end{array}$

$10 - 8 = 2$ ones

$90 - 70 = 20 = 2$ tens

$900 - 600 = 300$
$= 3$ hundreds

$5,000 - 4,000 = 1,000$
$= 1$ thousand

Since the difference 1,322 is close to the estimate 1,300, the difference is reasonable.

There are still 1,322 tickets available for the concert.

Convince Me! **Use Structure** How would you regroup if the hall had 5,900 seats?

☆ Guided Practice

Do You Understand?

1. Leesa used compensation to solve the problem on the previous page. She subtracted $(6{,}000 - 1) - (4{,}678 - 1) = 5{,}999 - 4{,}677 = 1{,}322$. How could you use Leesa's approach to subtract $5{,}000 - 1{,}476$?

2. One passenger flew 11,033 kilometers from Oslo to Lima. Another passenger flew 8,593 kilometers from Oslo to Los Angeles. How many more kilometers was the flight to Lima?

Do You Know How?

For **3–8**, subtract.

3.	6,000 − 1,773	**4.**	231,086 − 172,863
5.	76,810 − 22,645	**6.**	90,304 − 51,137

7. $101{,}001 - 8{,}915$ **8.** $9{,}050 - 3{,}461$

☆ Independent Practice ☆

For **9–23**, subtract.

> Estimate to check if your answer is reasonable.

9.	1,902 − 1,374	**10.**	6,502 − 5,380	**11.**	63,000 − 48,673	**12.**	84,010 − 3,992
13.	2,025 − 1,540	**14.**	31,030 − 27,426	**15.**	50,469 − 22,917	**16.**	1,830 − 644
17.	7,203 − 847	**18.**	726,003 − 282,942	**19.**	4,707 − 2,016	**20.**	30,900 − 22,855

21. $6{,}090 - 5{,}130$ **22.** $11{,}246 - 9{,}489$ **23.** $790{,}008 - 643{,}829$

Problem Solving

24. Construct Arguments Will the difference between 44,041 and 43,876 be greater or less than 1,000? Explain.

25. (A-Z) **Vocabulary** Define *variable* and give an example of how a variable is used in an equation.

For **26–27**, use the table at the right.

26. How many more hip-hop than country downloads were sold?

27. Higher Order Thinking How many more hip-hop and Latin downloads were sold than rock and country downloads? Explain.

DATA

Music City Sales

Music style	Downloads sold
Rock	4,007
Hip-hop	7,097
Country	5,063
Latin	6,203

Assessment Practice

28. Select all the correct differences.

- [ ] $5,000 - 1,856 = 3,244$
- [ ] $10,700 - 8,243 = 2,457$
- [ ] $64,002 - 43,178 = 20,934$
- [ ] $98,000 - 59,214 = 38,786$
- [ ] $600,482 - 428,531 = 171,951$

29. Find the difference.

$$\begin{array}{r} 60,000 \\ -\ 38,243 \\ \hline \end{array}$$

Ⓐ 17,355

Ⓑ 20,757

Ⓒ 21,757

Ⓓ 98,243