Trade-First Subtraction

Trade-first subtraction looks just like the standard algorithm (see pages 28 and 29) when it is completed. The difference is that with the trade-first algorithm, all trading (or regrouping) is carried out before any subtracting begins.

Many students find the trade-first algorithm to be an easy alternative to the switching between trading and subtracting that is required in the traditional algorithm.

Build Understanding

Using pages 25, 26, and 27, explain that with this method of subtracting, students will begin by carrying out all necessary trading until the top number in each column is at least as large as the bottom number. Then students will subtract the numbers in each column (either left-to-right or right-to-left) to find the difference. Use questions like the following to guide students through the examples:

- In the example on page 25, which numbers are in the tens place? (3 and 7) Can you remove 7 tens from 3 tens? (no) What trade can you make so that you will be able to remove the 7 tens? (Trade 1 hundred for 10 tens. After trading, there will be 13 tens, and you can then remove 7 tens.)
- In the example on page 26, what do the 6 and 13 written above the 7 and 3 show? (They show that 1 of the 7 hundreds was traded for 10 tens, decreasing the number of hundreds to 6 and increasing the number of tens to 13.)
- In the example on page 27, can you remove the 5 ones without trading? (No. You must trade to get more ones.) Can you remove 9 tens from 7 tens? (No. You must trade 1 hundred for 10 tens, and then trade 1 thousand for 10 hundreds.)
- Does it matter whether you begin trading and subtracting on the left or on the right? (no)

Error Alert Watch for students who simply subtract the lesser number from the greater number in each column, without thought to whether a trade is needed. More work with models can often help these students.

Check Understanding

Have a volunteer go to the board and solve the problem 215 – 196. Ask the volunteer to explain each step as she or she works. The class should direct questions concerning the problem to the volunteer. When you are reasonably certain that most of your students understand the algorithm, assign the “Check Your Understanding” exercises at the bottom of page 25. For practice of simple problems without models, refer students to page 26. For practice of more difficult problems without models, refer students to page 27. (See answers in margin.)
Trade-First Subtraction (with Models)

Use blocks to model the larger number. Trade blocks between the place-value columns as necessary. Trade until the top number in each column is at least as large as the bottom number. Then subtract the numbers to find the difference.

Example

Model the larger number (432).

Think: Can I remove 7 tens from 3 tens? (no)
Trade 1 hundred for 10 tens.

Think: Can I remove 5 ones from 2 ones? (no)
Trade 1 ten for 10 ones.

After all the trading, the blocks look like this.

Subtract the numbers in each column.
257 is the difference.

Check Your Understanding

Solve the following problems.

1. 29 – 18
2. 61 – 34
3. 76 – 28
4. 83 – 55
5. 241 – 15
6. 322 – 19
7. 115 – 56
8. 200 – 99

Write your answers on a separate sheet of paper.
Trade-First Subtraction

Look at the numbers in each place-value column. Trade until the top number in each column is at least as large as the bottom number. Then subtract the numbers in each column to find the difference.

**Example**

\[
\begin{array}{ccc}
 & 7 & 3 \ 8 \\
- & 4 & 5 \ 2 \\
\hline
& 6 & 13
\end{array}
\]

**Write** the problem in a place-value chart.

**Think:** Can I remove 5 tens from 3 tens? (no)

**Trade** 1 hundred for 10 tens.

**Record** the trade.

**Think:** Can I remove 2 ones from 8 ones? (yes)

**Subtract** the numbers in each column.

286 is the difference.

---

**Check Your Understanding**

Solve the following problems.

1. \(51 - 32\)
2. \(93 - 25\)
3. \(66 - 58\)
4. \(303 - 72\)
5. \(831 - 62\)
6. \(427 - 153\)
7. \(759 - 86\)
8. \(580 - 59\)

Write your answers on a separate sheet of paper.
Trade-First Subtraction

Look at the numbers in each place-value column. Trade until the top number in each column is at least as large as the bottom number. Then subtract the numbers in each column to find the difference.

**Example**

Write the problem in a place-value chart.

<table>
<thead>
<tr>
<th>1,000s</th>
<th>100s</th>
<th>10s</th>
<th>1s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>-1</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

Think: Can I remove 5 ones from 1 one? (no)
Trade 1 ten for 10 ones.
Record the trade.

Think: Can I remove 9 tens from 6 tens? (no)
Trade 1 hundred for 10 tens.
Record the trade.

Think: Can I remove 6 hundreds from 3 hundreds? (no)
Trade 1 thousand for 10 hundreds.
Record the trade.

Subtract the numbers in each column.

2,776 is the difference.

**Check Your Understanding**

Solve the following problems.

1. 92 − 68
2. 84 − 35
3. 938 − 49
4. 782 − 95
5. 111 − 92
6. 503 − 224
7. 1,340 − 59
8. 2,200 − 307

Write your answers on a separate sheet of paper.