

Column Subtraction: The Formal Written Method

Column subtraction is a formal written method used to subtract numbers by arranging them in columns based on their place value. Using a place value chart can enhance your understanding of the process, while estimating your answers helps ensure the final answer is reasonable. Start with simple problems that don't involve exchanging (borrowing) and gradually progress to more complex ones.

How to Undertake Column Subtraction with a Place Value Chart

1. Write the Calculation

- Write the minuend (the number being subtracted from) above the subtrahend (the number being subtracted).
- Align the digits correctly in place value columns.

2. Estimate the Answer

- Round each number to one significant figure and estimate the answer.

3. Use a Place Value Chart

- Build the calculation on a place value chart using only the minuend because this is the number being subtracted from.

4. Perform the Subtraction on the Place Value Chart

- Start with the units column.
- If the subtrahend is larger than the corresponding minuend, exchange (borrow) from a higher place value.

5. Record the Calculation using the Formal Written Method

- If any exchanges have taken place, record them too.

6. Check the Final Answer Against the Estimate

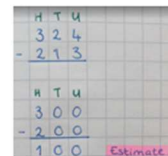
- Compare your final answer to your earlier estimate.
- Is it reasonable?




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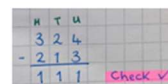
How to undertake column subtraction on a place value chart (no exchanging):

- Write the calculation.
- Estimate the answer.
- Use a place value chart.
- Perform the subtraction on a place value chart.
- Record the calculation using the formal written method.
- Check the final answer against the estimate.

(Images were created using free virtual manipulatives available at Mathsbot.com.)



Hundreds	Tens	Ones
		



Column Subtraction: The Formal Written Method

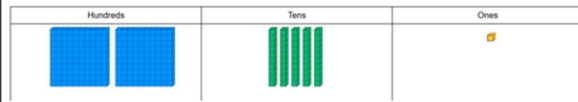
How to undertake column subtraction on a place value chart (exchanging from tens to units):

1. Write the calculation.
2. Estimate the answer.
3. Use a place value chart.
4. Perform the subtraction on the place value chart.
5. Record the calculation using the formal written method.
6. Check the final answer against the estimate.

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$$\begin{array}{r} \text{H T U} \\ 251 \\ - 137 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T U} \\ 300 \\ - 100 \\ \hline 200 \end{array} \quad \text{Estimate}$$



$$\begin{array}{r} \text{H T U} \\ 251 \\ - 137 \\ \hline 114 \end{array} \quad \text{Check}$$

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Column Subtraction: The Formal Written Method

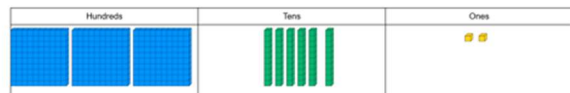
How to undertake column subtraction on a place value chart (exchanging from hundreds to tens):

1. Write the calculation.
2. Estimate the answer.
3. Use a place value chart.
4. Perform the subtraction on the place value chart.
5. Record the calculation using the formal written method.
6. Check the final answer against the estimate.

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$$\begin{array}{r} \text{H T U} \\ 362 \\ - 171 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T U} \\ 400 \\ - 200 \\ \hline 200 \end{array} \quad \text{Estimate}$$



$$\begin{array}{r} \text{H T U} \\ 362 \\ - 171 \\ \hline 191 \end{array} \quad \text{Check}$$

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Column Subtraction: The Formal Written Method

How to undertake column subtraction on a place value chart (exchanging in multiple places):

1. Write the calculation.
2. Estimate the answer.
3. Use a place value chart.
4. Perform the subtraction on the place value chart.
5. Record the calculation using the formal written method.
6. Check the final answer against the estimate.

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$$\begin{array}{r} \text{H T U} \\ 232 \\ - 147 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T U} \\ 200 \\ - 100 \\ \hline 100 \end{array}$$

Estimate

Hundreds	Tens	Ones
		

$$\begin{array}{r} \text{H T U} \\ 232 \\ - 147 \\ \hline 085 \end{array}$$

Check ✓✓

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How to undertake column subtraction on a place value chart (exchanges involving zero):

1. Write the calculation.
2. Estimate the answer.
3. Use a place value chart.
4. Perform the subtraction on the place value chart.
5. Record the calculation using the formal written method.
6. Check the final answer against the estimate.

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$$\begin{array}{r} \text{H T U} \\ 205 \\ - 126 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H T U} \\ 200 \\ - 100 \\ \hline 100 \end{array}$$

Estimate

Hundreds	Tens	Ones
		

$$\begin{array}{r} \text{H T U} \\ 205 \\ - 126 \\ \hline 79 \end{array}$$

Check ✓✓

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