

Whole Number Subtraction Borrowing and Problem Solving

Let's look at basic computations using subtraction. In subtraction, we find the difference between two numbers. Sometimes we must borrow. To borrow look at the place to the left, the "neighbor" of the column we are subtracting.

Sometimes we encounter a zero in the neighbor's place when borrowing. In that case, we must go to the next neighbor over to the left to find a value. We may find lots of zeros when we are borrowing where we must look across to find a nonzero number and then borrow until we get back to the place from which we are subtracting.

We will solve word problems where we apply subtraction. Look for key words and read the problem more than once.

Whole Number Subtraction

Whole Number Subtraction with Zeros

More Whole Number Subtraction with Zeros

Problem Solving – Subtraction

Whole Number Subtraction

Estimate the difference, then solve: **5428 - 3764**

Estimation:

$$5000 - 4000 = 1000$$

The estimated answer is 1000.

Solution:

Line up the numbers from right to left so that all place values are in line.

Subtract the ones	Borrow Subtract the tens	Borrow Subtract the hundreds	Subtract the thousands
$\begin{array}{r} 5428 \\ -3764 \\ \hline 4 \end{array}$	$\begin{array}{r} \overset{3}{\cancel{5}}\overset{12}{\cancel{4}}8 \\ -3764 \\ \hline 64 \end{array}$	$\begin{array}{r} \overset{4}{\cancel{5}}\overset{13}{\cancel{4}}28 \\ -3764 \\ \hline 664 \end{array}$	$\begin{array}{r} \overset{4}{\cancel{5}}428 \\ -3764 \\ \hline 1664 \end{array}$

Answer: **5428 - 3764 = 1664**

Check: *The estimated answer, 1000, is close to 1664.*

Check by adding

$$\begin{array}{r} 1664 \\ +3764 \\ \hline 5428 \end{array}$$

Whole Number Subtraction with Zeros

Estimate the difference, then solve: $4000 - 1582$

Estimation:

$$4000 - 2000 = 2000$$

The estimated answer is 2000.

Solution:

Line up the numbers from right to left so that all place values are in line.

Borrow
Subtract the ones

$$\begin{array}{r} 9 \\ 3\cancel{0}\cancel{0}10 \\ \cancel{4}000 \\ -1582 \\ \hline 8 \end{array}$$

Subtract

$$\begin{array}{r} 9 \\ 3\cancel{0}\cancel{0}10 \\ \cancel{4}000 \\ -1582 \\ \hline 2418 \end{array}$$

To borrow in this problem, go to thousands place, since there are 0 hundreds and 0 tens. Work from thousands place back over to ones, place by place.

1. Borrow from the 4 to get 10 hundreds leaving 3 thousands.
2. Borrow from the 10 hundreds to get 10 tens leaving 9 hundreds.
3. Borrow from the 10 tens to get 10 ones leaving 9 tens.

Answer: $4000 - 1582 = 2418$

Check: *The estimated answer, 2000, is close to 2418.*

Check by adding

$$\begin{array}{r} 2418 \\ +1582 \\ \hline 4000 \end{array}$$

Whole Number Subtraction with Zeros

Estimate the difference, then solve: **7006 - 2379**

Estimation:

$$7000 - 2000 = 5000$$

The estimated answer is 5000.

Solution:

Line up the numbers from right to left so that all place values are in line.

Borrow
Subtract the ones

$$\begin{array}{r} ^9 ^9 \\ 6 \cancel{0} \cancel{0} 16 \\ 7006 \\ -2379 \\ \hline 7 \end{array}$$

Subtract

$$\begin{array}{r} ^9 ^9 \\ 6 \cancel{0} \cancel{0} 16 \\ 7006 \\ -2379 \\ \hline 4627 \end{array}$$

To borrow in this problem, go to thousands place, since there are 0 hundreds and 0 tens. Work from thousands place back over to ones, place by place.

4. Borrow from the 7 to get 10 hundreds leaving 6 thousands
5. Borrow from the 10 hundreds to get 10 tens leaving 9 hundreds.
6. Borrow from the 10 tens to get 16 ones leaving 9 tens.

Answer: **$7006 - 2379 = 4627$**

Check: *The estimated answer, 5000, is close to 4627.*

Check by adding

$$\begin{array}{r} 4627 \\ +2379 \\ \hline 7006 \end{array}$$

Problem Solving – Subtract

The 4-H club set a goal to earn \$500 to cover all the trip expenses. So far they have earned \$376. **How much more** do they need to earn?

The key phrase is **“how much more”**. This is a **subtraction** problem because the amount of money earned is being **compared** to the amount of money needed.

$$\$500 - \$376 = \$124.$$