Regrouping with Zero Tens

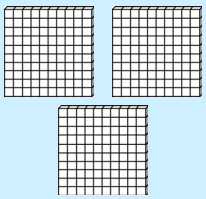
If there are zero tens and you need to regroup, first regroup a hundred as 10 tens, and then regroup one ten as 10 ones. Study the examples.

Example 1. Subtract 174. We cannot subtract 4 ones. We cannot even break a ten, as there are none! So... first we break one hundred into 10 tens.

Now we have 2 hundreds and 10 tens. But we still cannot subtract 4 ones. So, we will now break 1 ten into 10 ones.

We have 200 + 9 tens + 10. Now we can subtract! Cross out 1 hundred, 7 tens, and 4 ones. What is left?

Subtract 174:



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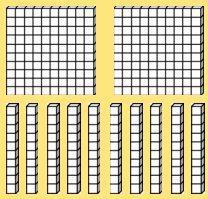

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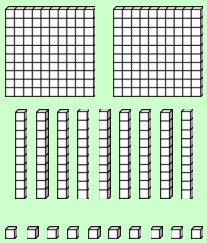
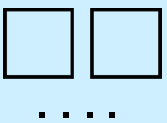


$$\begin{array}{r} 300 + 0 + 0 \\ -\ 100 - 70 - 4 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 200 + 100 + 0 \\ -\ 100 - 70 - 4 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 200 + 90 + 10 \\ -\ 100 - 70 - 4 \\ \hline 100 + 20 + 6 \end{array}$$

Example 2. Subtract 65. We cannot subtract 5 ones, and there are no tens! So, first we break one hundred into 10 tens.

Now we have 1 hundred and 10 tens. We still cannot subtract 5 ones. So, we will now break one ten into 10 ones.

We have 100 + 9 tens + 14. Now we can subtract 65! Cross out 6 tens and 5 ones. What is left?



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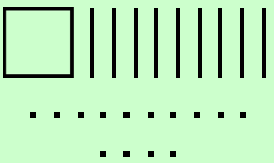
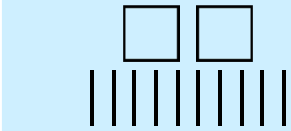
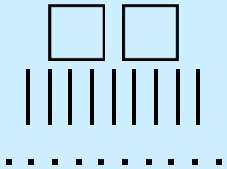


$$\begin{array}{r} 200 + 0 + 4 \\ -\ 60 - 5 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 100 + 100 + 4 \\ -\ 60 - 5 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 100 + 90 + 14 \\ -\ 60 - 5 \\ \hline 100 + 30 + 9 \end{array}$$

1. Fill in. Draw pictures to illustrate the process. You can use manipulatives instead.

a. □□□ → break a 100 →  → break a 10 → 

Cross out 128. Compare to the subtraction below.

$$\begin{array}{r} 300 + 0 + 0 \\ -\ 100 - 20 - 8 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 200 + \square + 0 \\ -\ 100 - 20 - 8 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 200 + \square + \square \\ -\ 100 - 20 - 8 \\ \hline \end{array}$$

b. □□□ ▪ ▪ → break a 100 → → break a 10 →

Cross out 263. Compare to the subtraction below.

$$\begin{array}{r} 300 + 0 + 2 \\ -\ 200 - 60 - 3 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 200 + \square + 2 \\ -\ 200 - 60 - 3 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 200 + \square + \square \\ -\ 200 - 60 - 3 \\ \hline \end{array}$$

c. □□□□ ▪ ▪ ▪ ▪ → break a 100 → → break a 10 →

Cross out 239. Compare to the subtraction below.

$$\begin{array}{r} 400 + 0 + 5 \\ -\ 200 - 30 - 9 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 300 + \square + 5 \\ -\ 200 - 30 - 9 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 300 + \square + \square \\ -\ 200 - 30 - 9 \\ \hline \end{array}$$

2. Regroup twice. First, regroup a hundred as 10 tens. Then, regroup a ten as 10 ones. Lastly subtract.

a. Take 100 and regroup that as 10 tens. Next, take 1 ten and regroup that as 10 ones. Now you can subtract.

$$\begin{array}{r} 700 + 0 + 3 \\ -\ 500 - 20 - 7 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 600 + \square + 3 \\ -\ 500 - 20 - 7 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 600 + \square + \square \\ -\ 500 - 20 - 7 \\ \hline \end{array}$$

b. Take 100 and regroup that as 10 tens. Next, take 1 ten and regroup that as 10 ones. Now you can subtract.

$$\begin{array}{r} 600 + 0 + 0 \\ -\ 200 - 80 - 1 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 500 + \square + 0 \\ -\ 200 - 80 - 1 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 500 + \square + \square \\ -\ 200 - 80 - 1 \\ \hline \end{array}$$

c. $\begin{array}{r} 800 + 0 + 1 \\ -\ 600 - 10 - 7 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 700 + \square + 1 \\ -\ 600 - 10 - 7 \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 700 + \square + \square \\ -\ 600 - 10 - 7 \\ \hline \end{array}$

3. Circle the addition and/or subtraction sentence(s) that match(es) the problem. Solve.

Jane has a picture of her class. There are 83 people. Of them, 27 are girls and the rest are boys. How many are boys?

$83 + 27 = b$

$83 + b = 27$

$27 + b = 83$

$83 - b = 27$

4. Make a word problem to match the addition sentence $22 + \triangle = 61$.