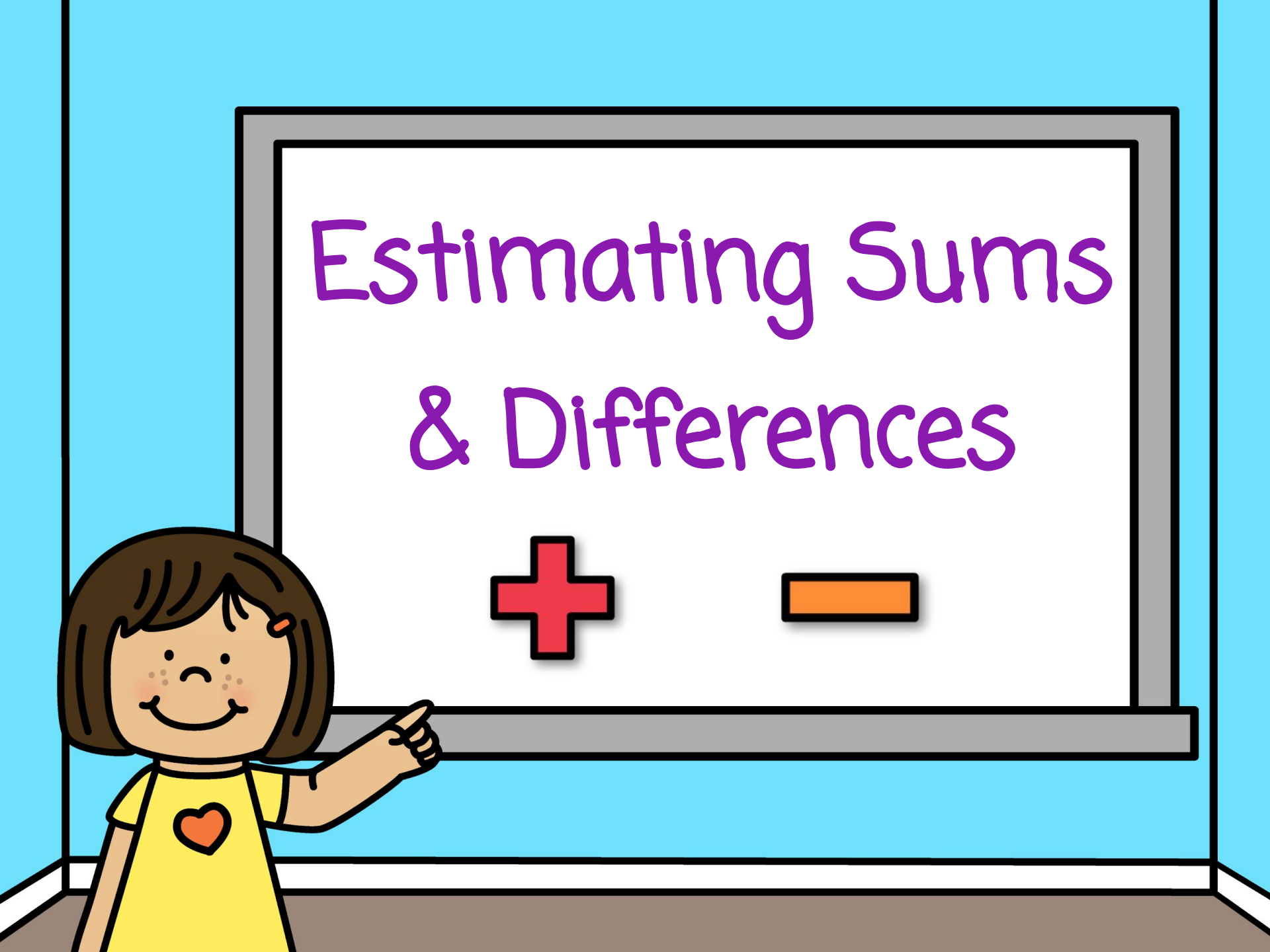

Estimating Sums
& Differences

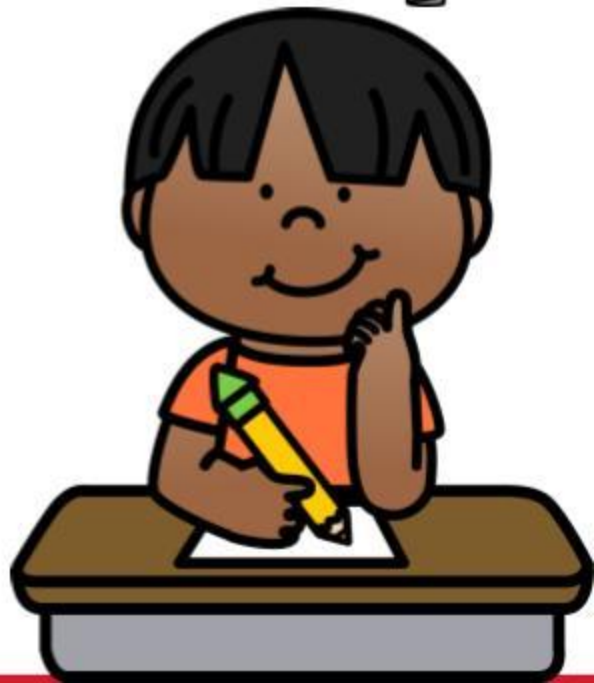
# Estimation

Estimation is finding a value that is close enough to the correct answer.

It involves making a thoughtful guess about the value of something.

You can change the numbers you have to numbers that are easier to use.

We use estimates when shopping, cooking, telling time, and for distance.



# #1: Rounding

Strategy # 1: Rounding

1. Find the place value we want to round to.
2. Round both addends to that place value.
3. Find the sum or difference of the rounded numbers.

$$\begin{array}{r} 85 \\ +\ 55 \\ \hline \end{array} \rightarrow \begin{array}{r} 90 \\ +\ 60 \\ \hline 150 \end{array} \qquad \begin{array}{r} 25 \\ +\ 37 \\ \hline \end{array} \rightarrow \begin{array}{r} 30 \\ +\ 40 \\ \hline 70 \end{array}$$

# #1: Rounding

$$\begin{array}{r} 3{,}268 \\ +\ 4{,}859 \\ \hline \end{array} \quad \Rightarrow \quad \begin{array}{r} 3{,}000 \\ +\ 5{,}000 \\ \hline 8{,}000 \end{array}$$

Rounding to the nearest thousand.

$$\begin{array}{r} 6{,}598 \\ +\ 325 \\ \hline \end{array} \quad \Rightarrow \quad \begin{array}{r} 6{,}600 \\ +\ 300 \\ \hline 6{,}900 \end{array}$$

Rounding to the nearest hundred.

# #2: Compatible Numbers

Strategy # 2: Compatible Numbers

"Friendly numbers" - numbers that are easy to put together.

| Numbers that end in 0 | Numbers that end in 5 |
|---|---|
| 10, 100, 1,000 | 5, 15, 45, 125 |
| **Doubles Facts** | **Numbers that make 10** |
| 2 + 2 = 4<br>8 + 8 = 16<br>20 + 20 = 40 | 9 + 1 = 10<br>8 + 2 = 10 |

$$\begin{array}{r} 86 \\ +\ 56 \\ \hline \end{array} \rightarrow \begin{array}{r} 85 \\ +\ 55 \\ \hline 140 \end{array}$$

$$\begin{array}{r} 25 \\ +\ 37 \\ \hline \end{array} \rightarrow \begin{array}{r} 25 \\ +\ 35 \\ \hline 60 \end{array}$$

# #3: Front End Estimation

Strategy # 3: Front End Estimation

Instead of rounding each number to a given place value, we round whatever number is in the front/ greatest place value.

$$\begin{array}{r} 67 \\ +\ 24 \\ \hline \end{array} \quad \Rightarrow \quad \begin{array}{r} 70 \\ +\ 20 \\ \hline 90 \end{array}$$

$$\begin{array}{r} 476 \\ +\ 342 \\ \hline \end{array} \quad \Rightarrow \quad \begin{array}{r} 500 \\ +\ 300 \\ \hline 800 \end{array}$$

With a 3 digit number, round to the nearest hundreds place.

# Addition

## Actual Sum:

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ \ \ \ \ } \\ 38{,}978 \\ +\ 23{,}421 \\ \hline 62{,}399 \end{array}$$

## Estimated Sum:

$$\begin{array}{r} 40{,}000 \\ +\ 20{,}000 \\ \hline 60{,}000 \end{array}$$

# Subtraction

## Actual Difference:

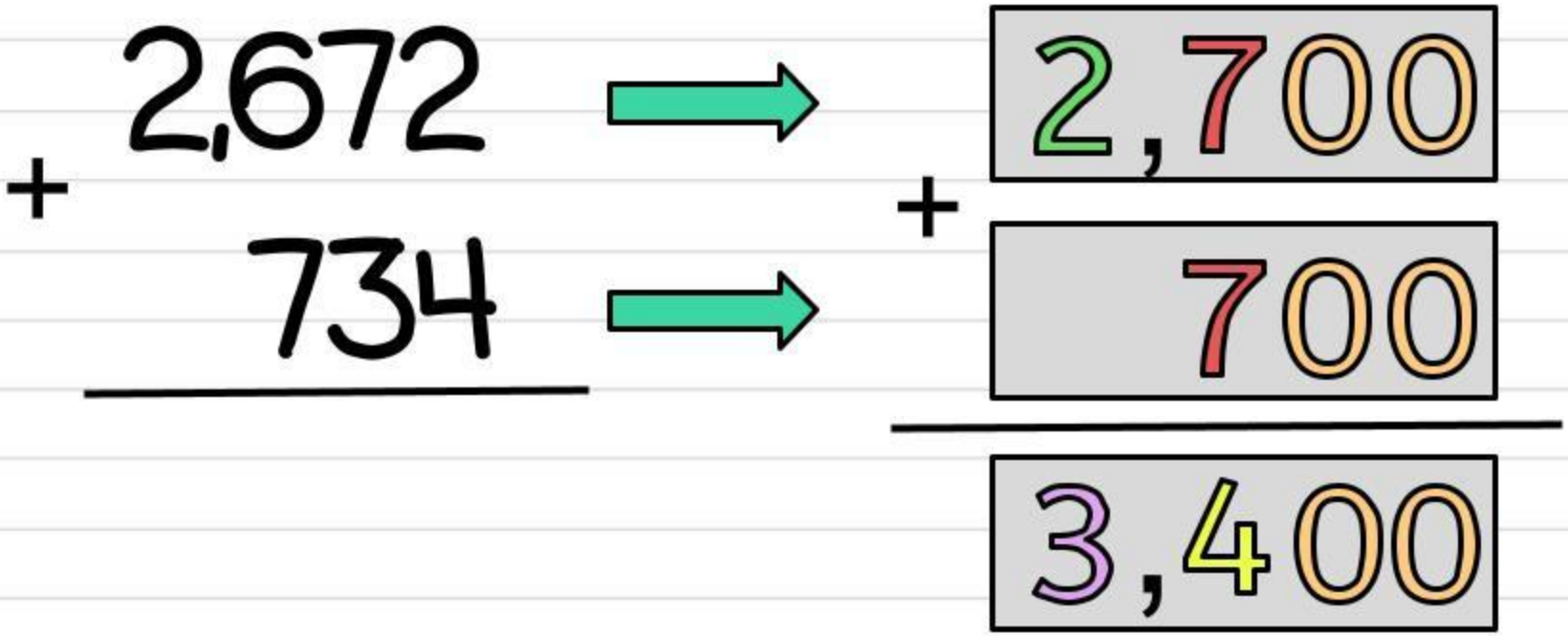
$$\begin{array}{r} {\scriptstyle 2\ \ 15} \\ 7\not{3},\not{5}68 \\ -\ \ 21,846 \\ \hline 51,722 \end{array}$$

## Estimated Difference:

$$\begin{array}{r} 70,000 \\ -\ \ 20,000 \\ \hline 50,000 \end{array}$$

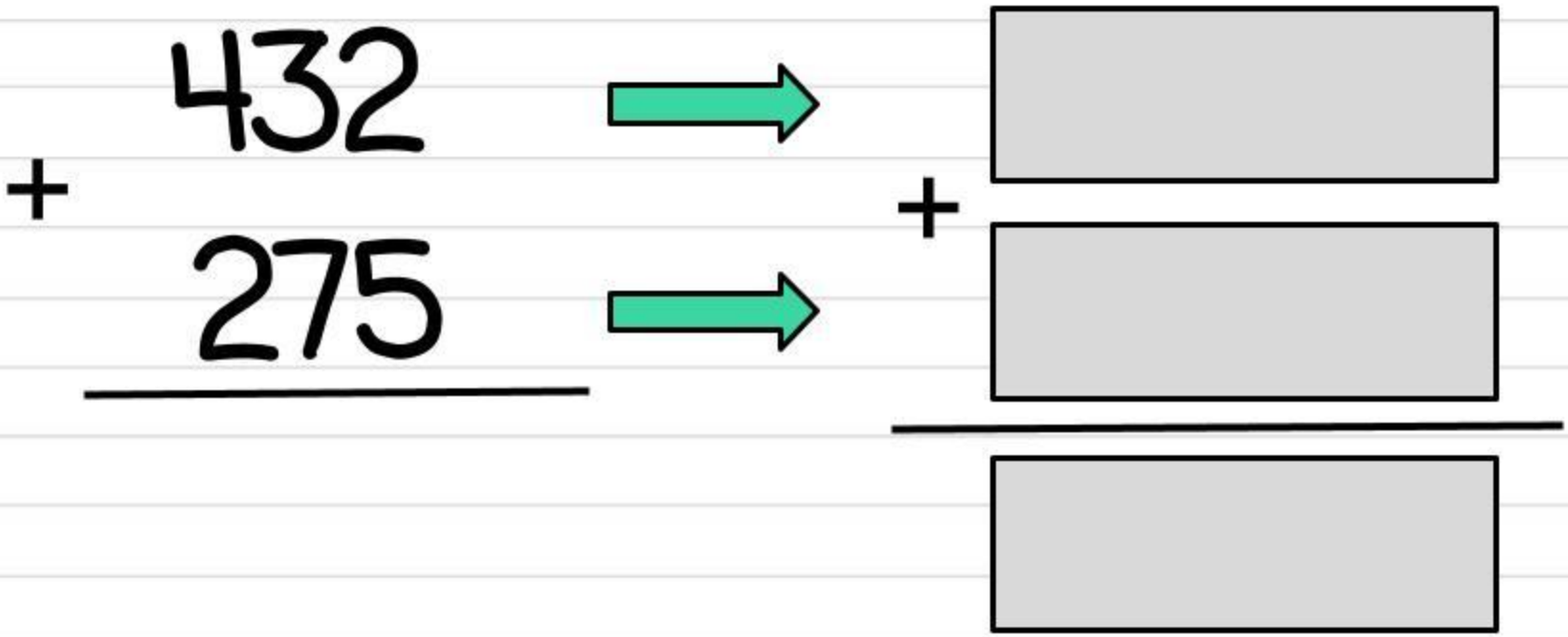
# Example:

Round each number to the nearest *hundred* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.



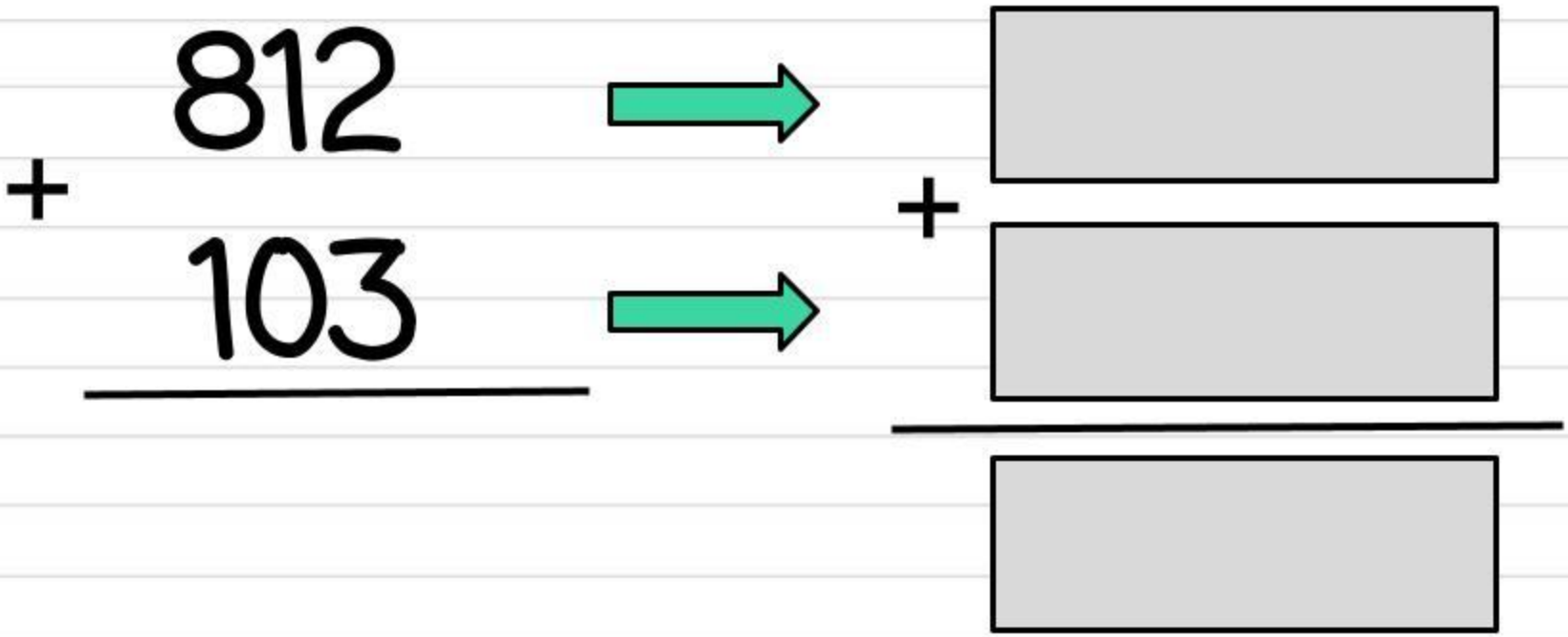

1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.



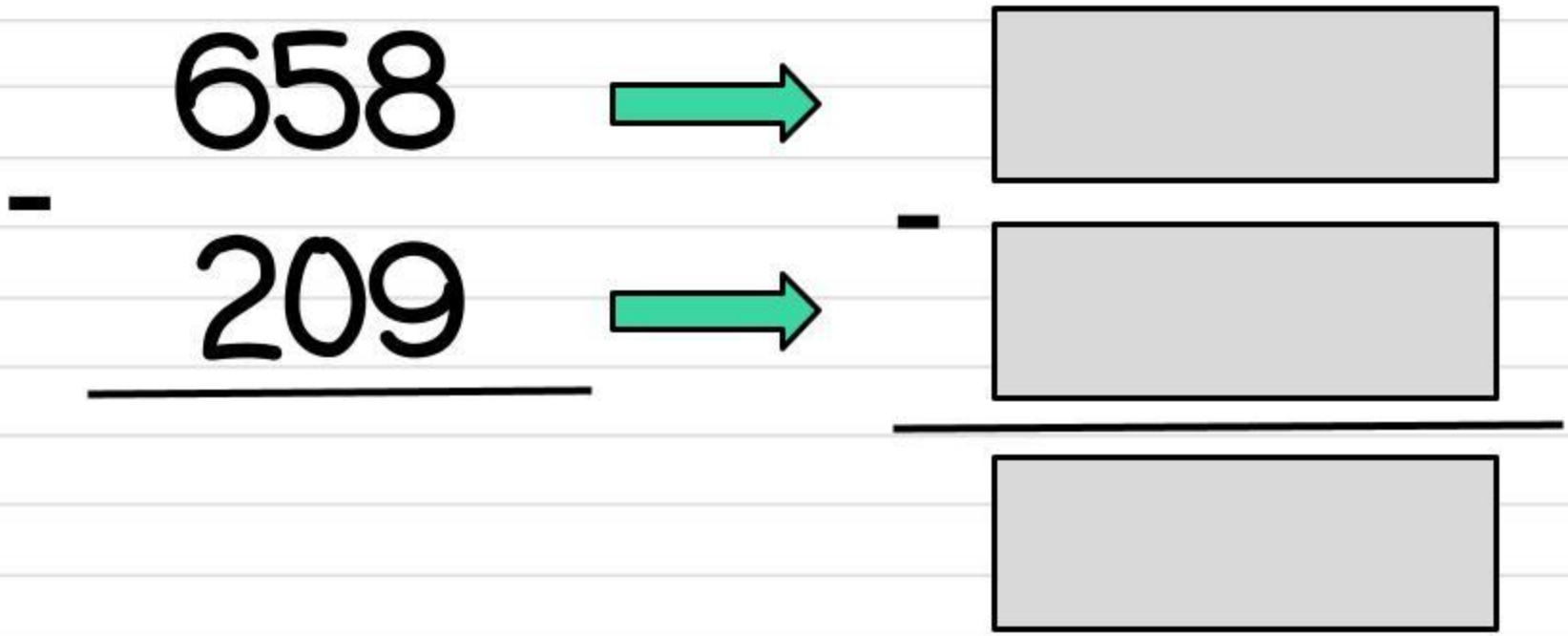

1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.



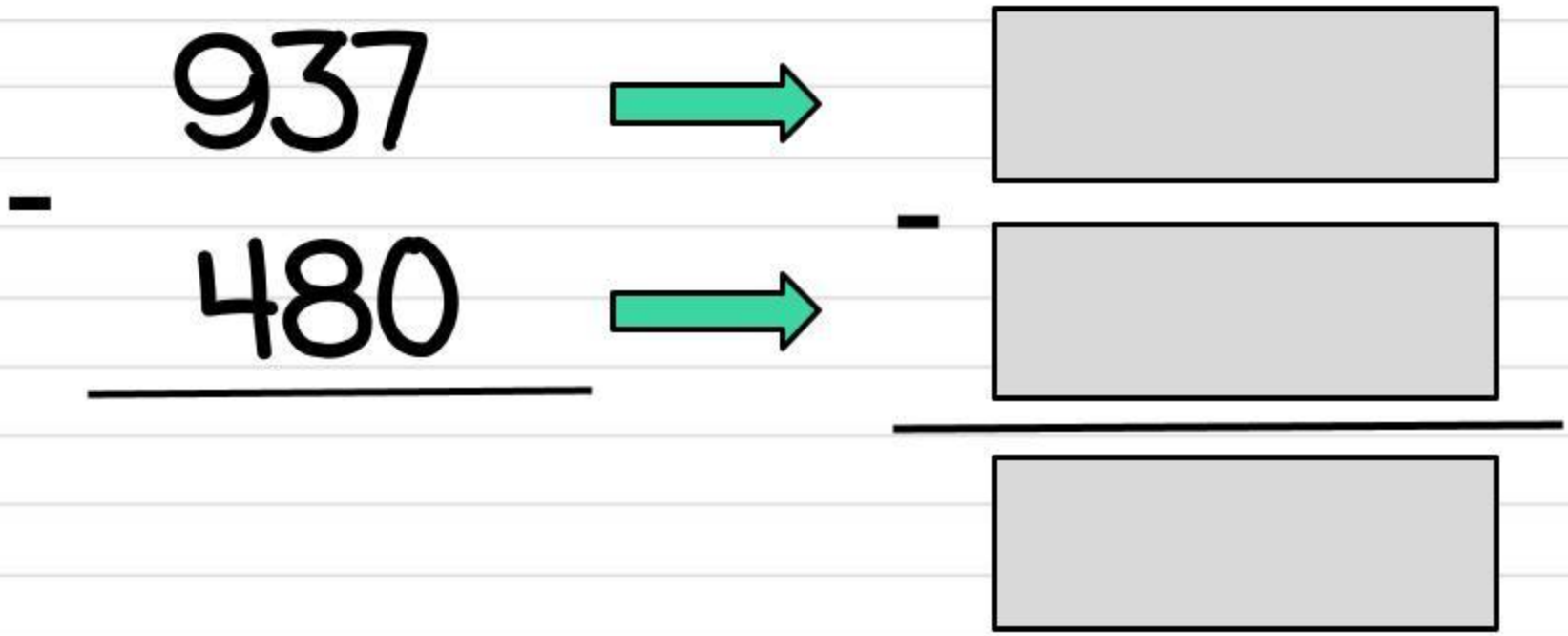

1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.



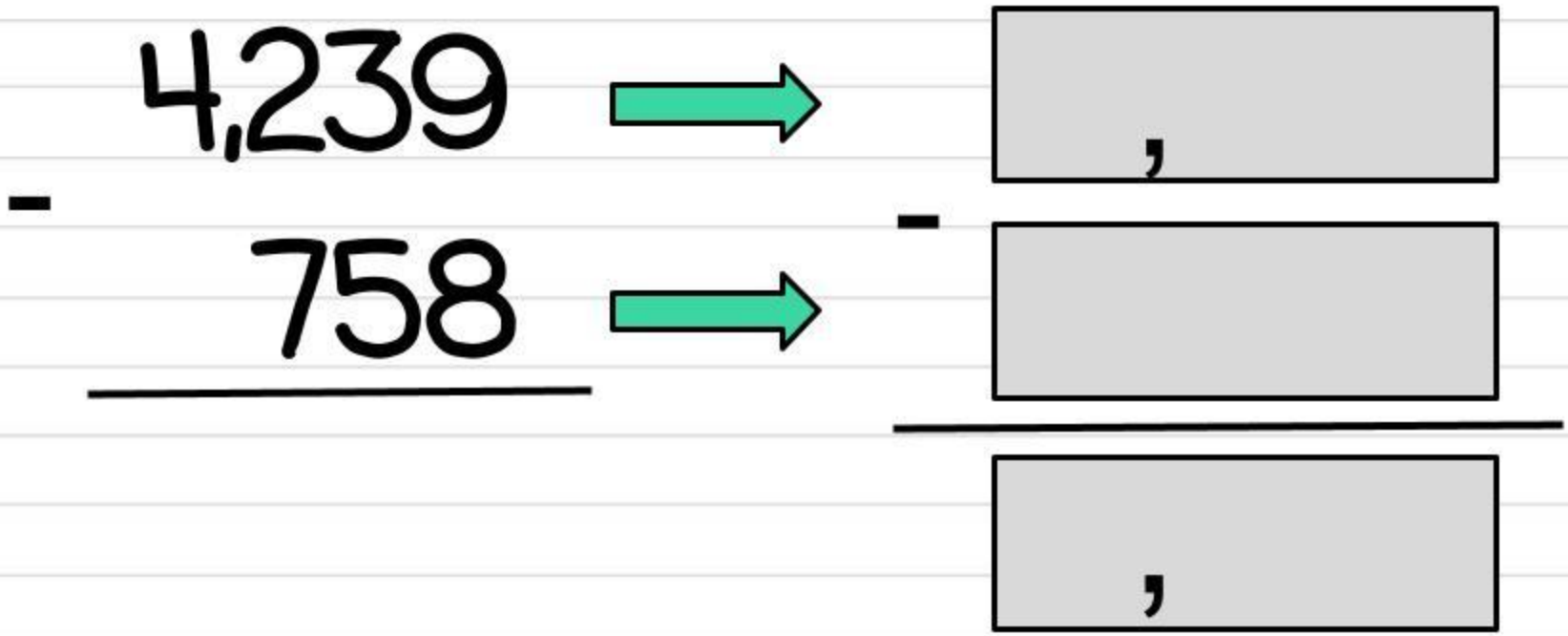

1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.




1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.




1 2 3 4 5 6 7 8 9 0

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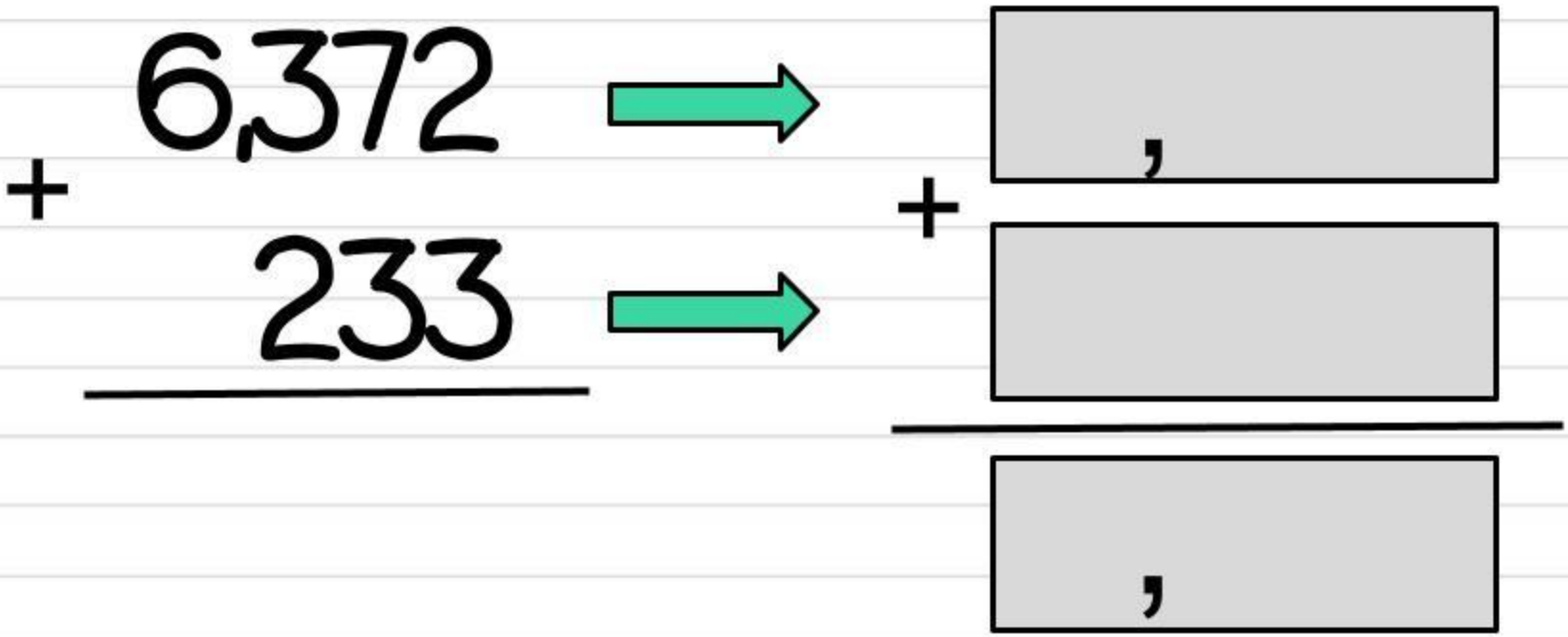
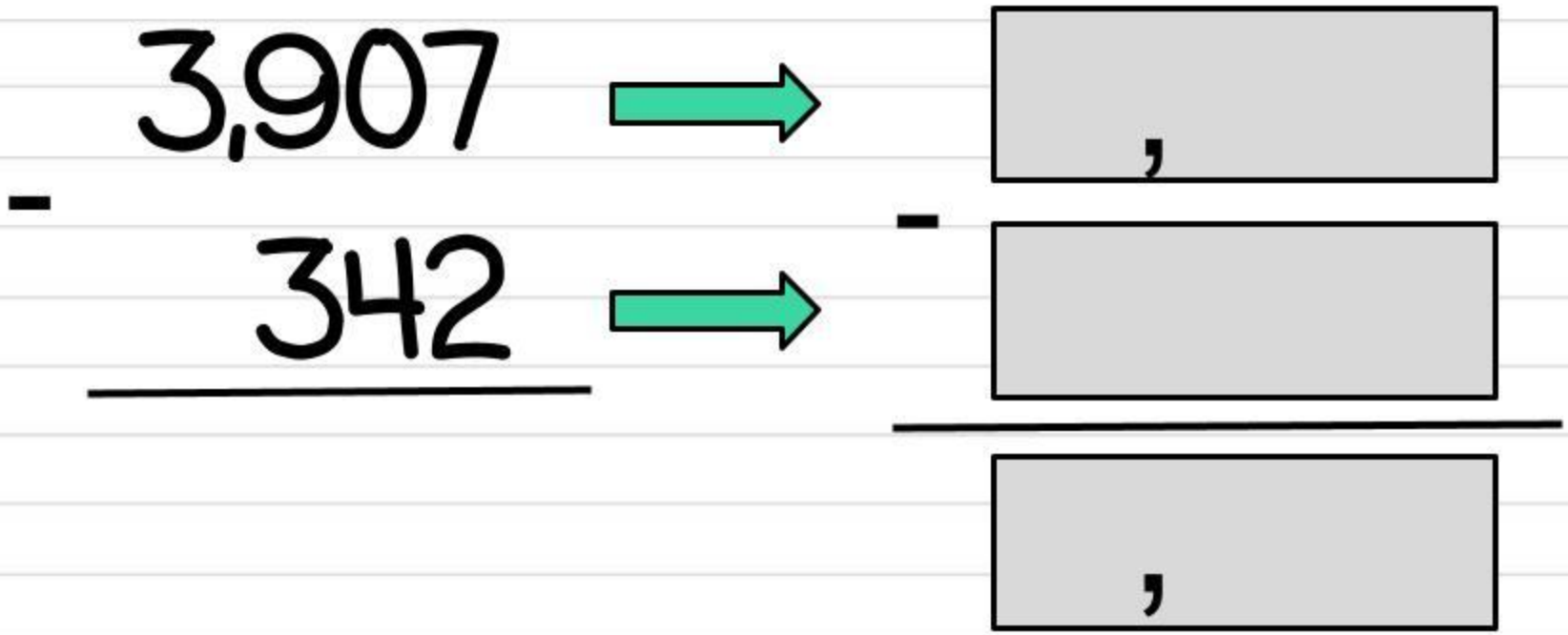


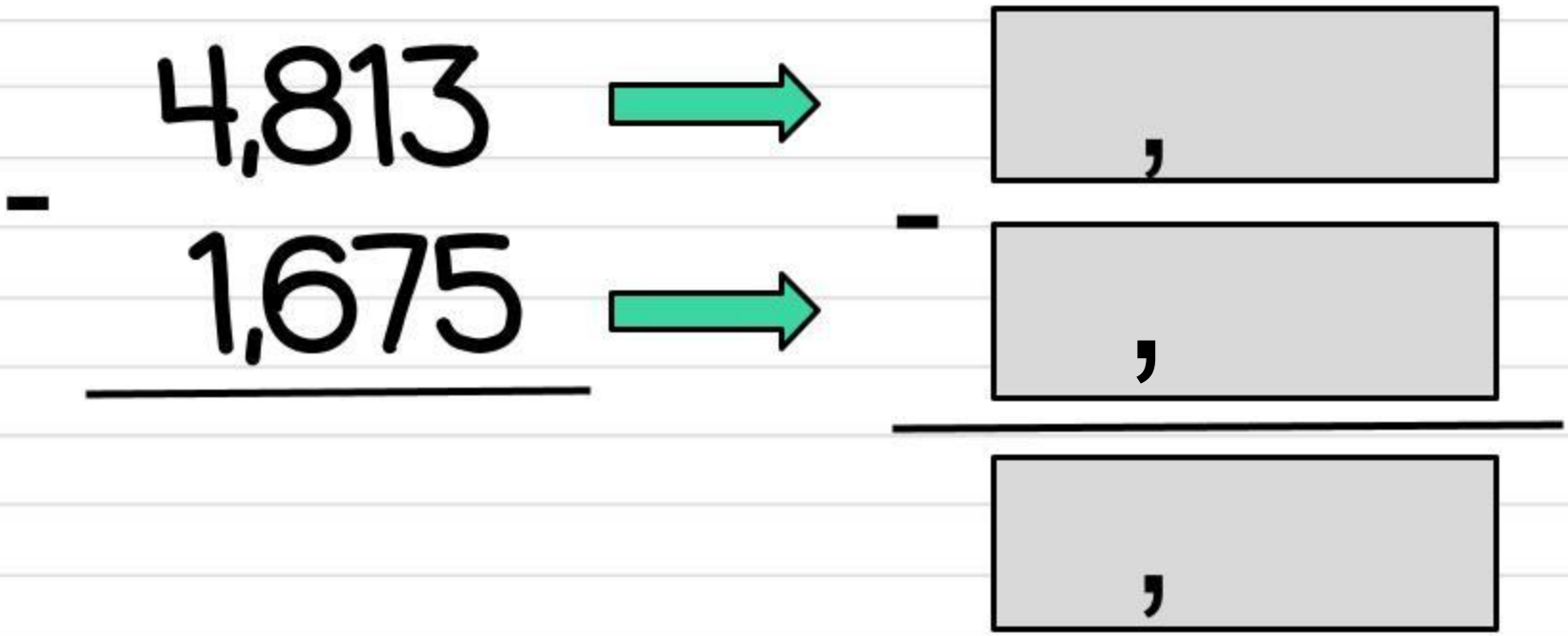

1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.




1 2 3 4 5 6 7 8 9 0

Round each number to the nearest ***thousand*** to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.




1 2 3 4 5 6 7 8 9 0

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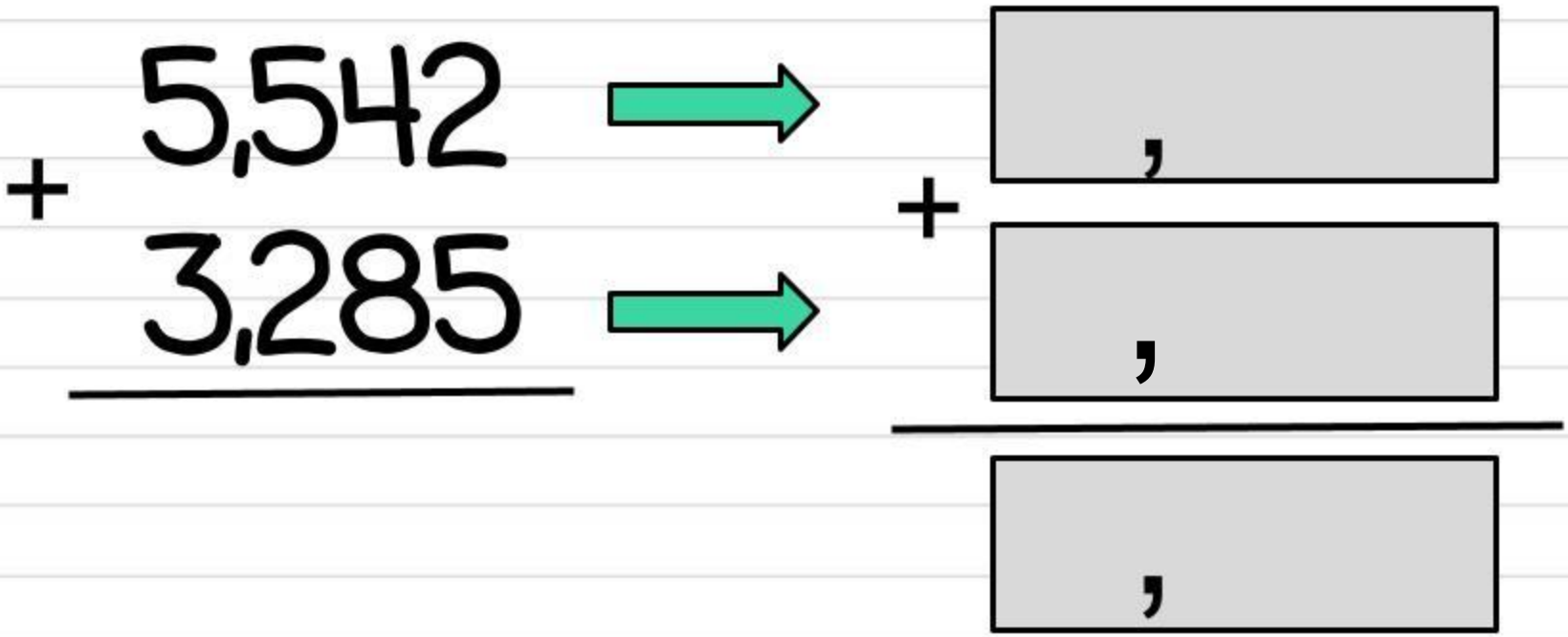


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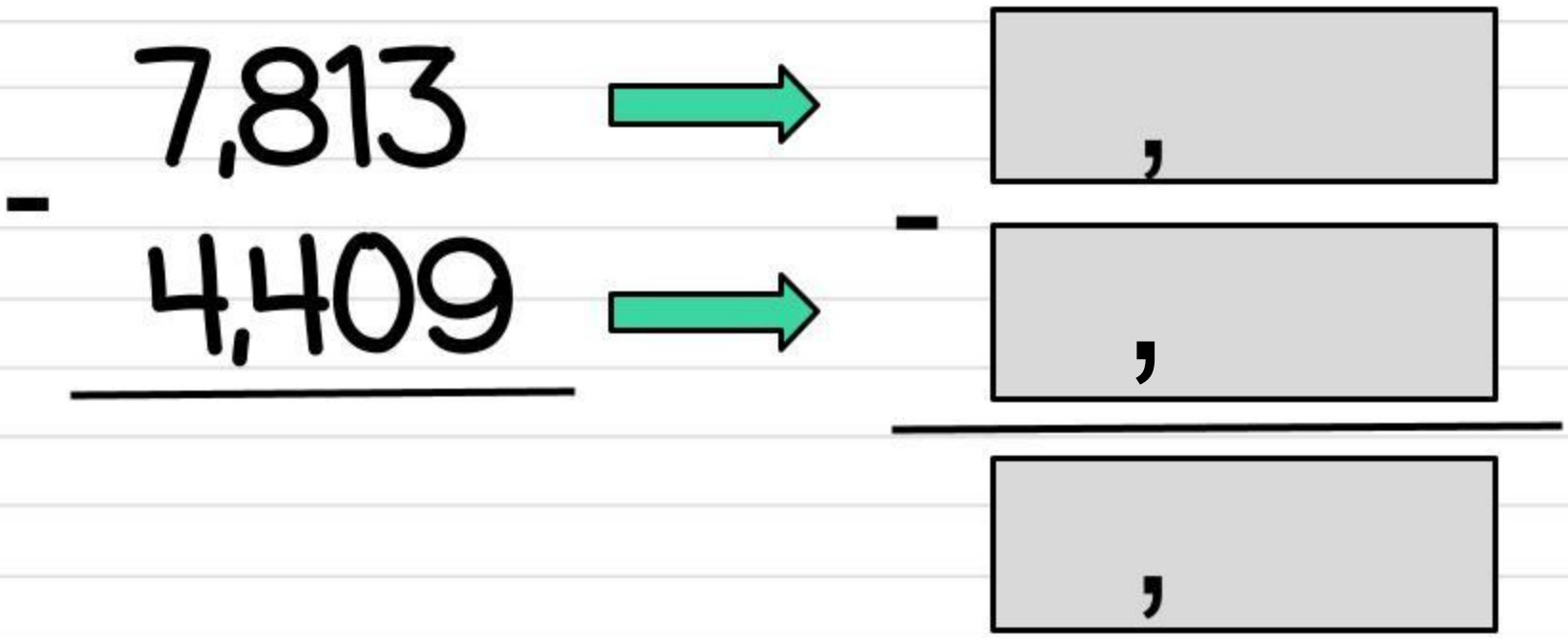
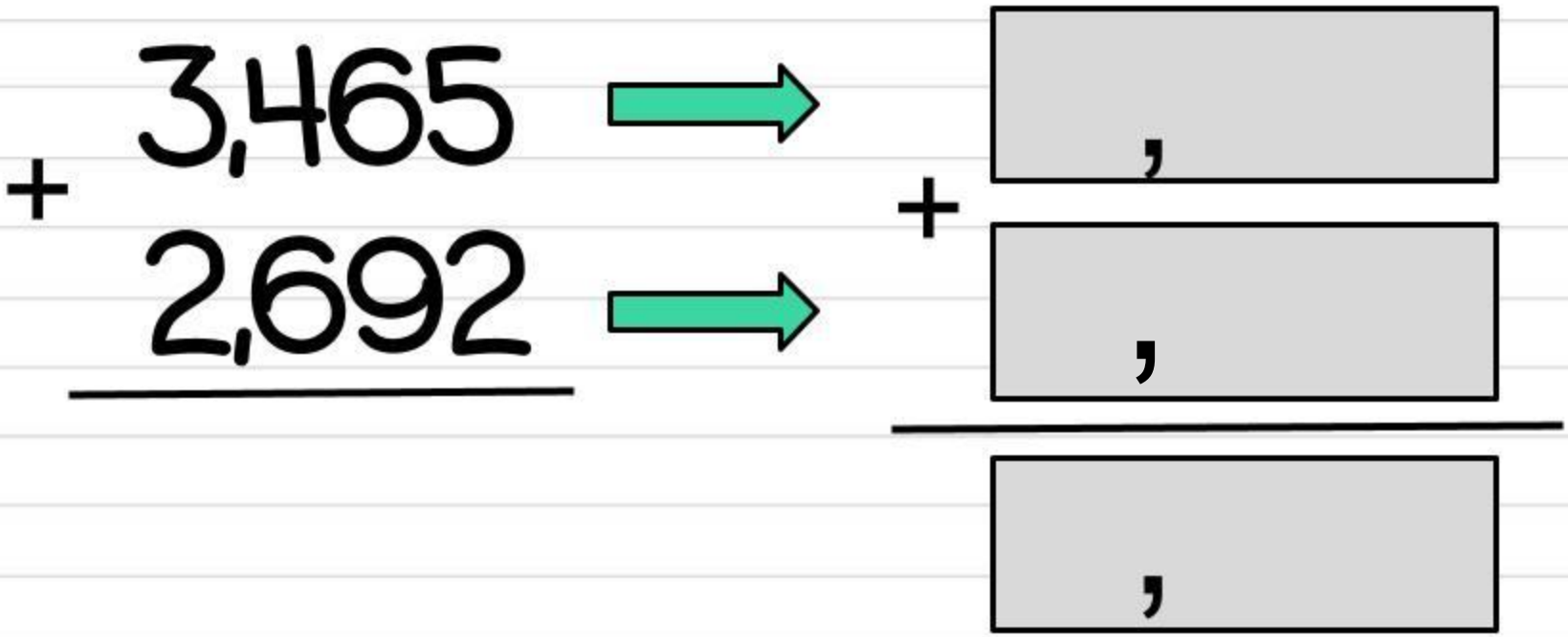



1 2 3 4 5 6 7 8 9 0

Round each number to the nearest ***thousand*** to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.




1 2 3 4 5 6 7 8 9 0

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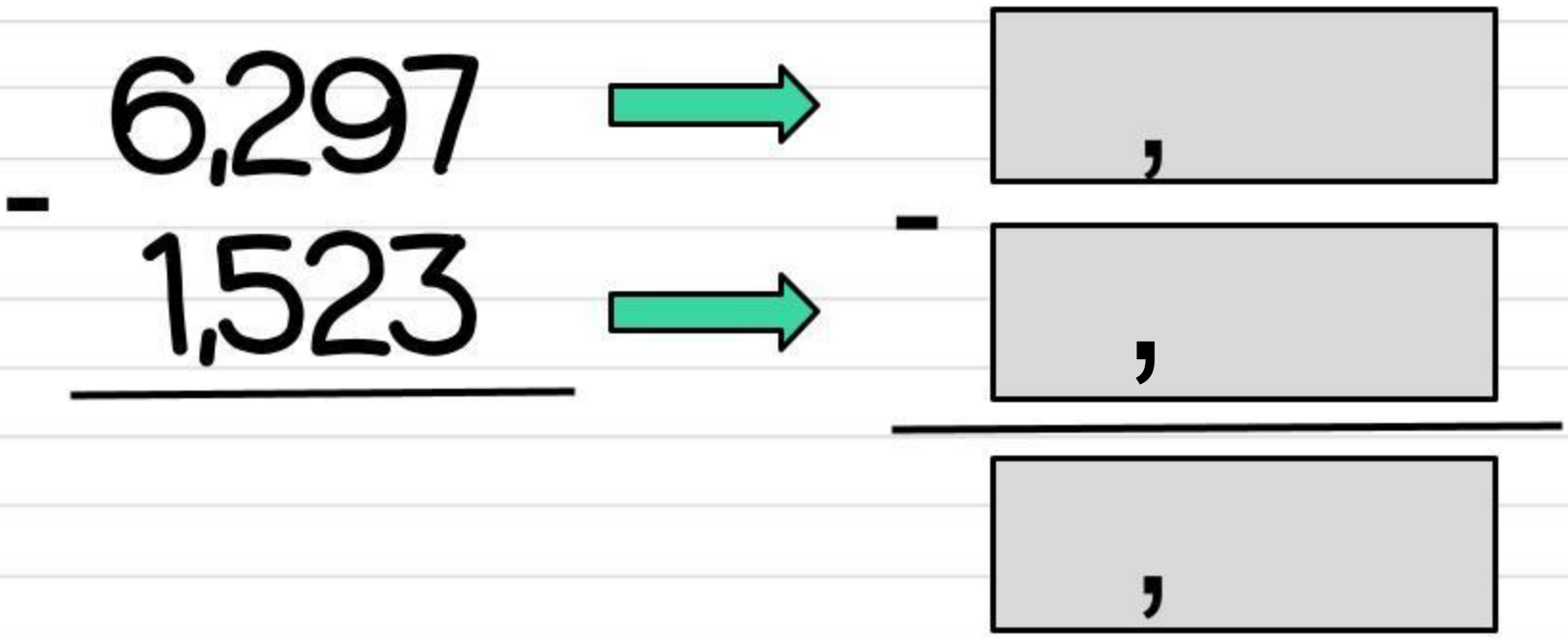


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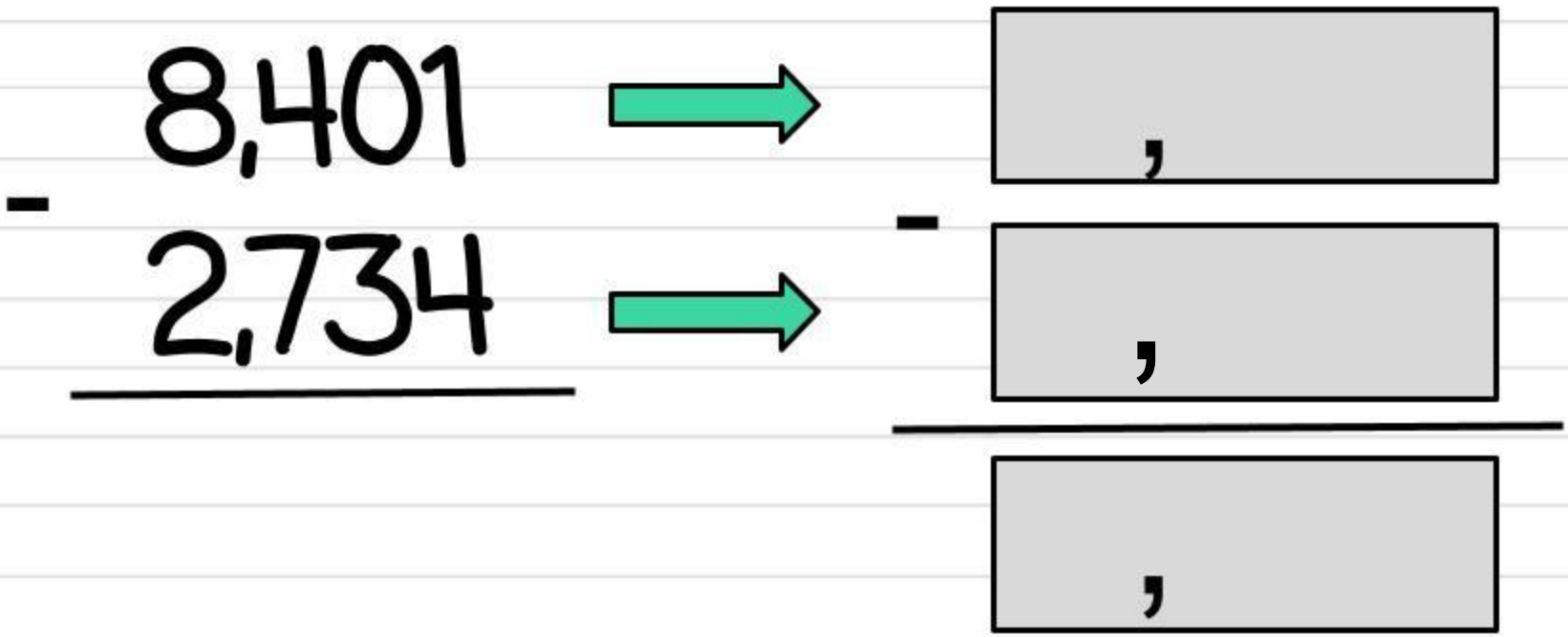


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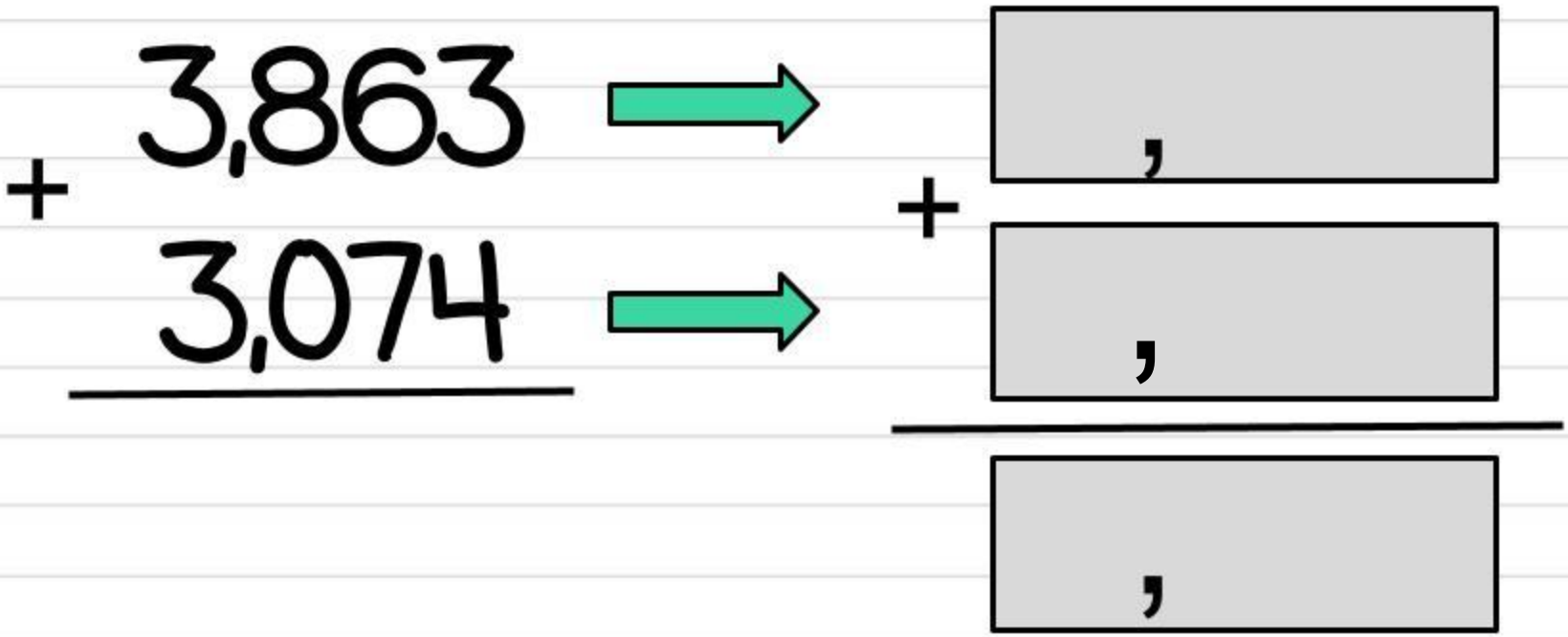
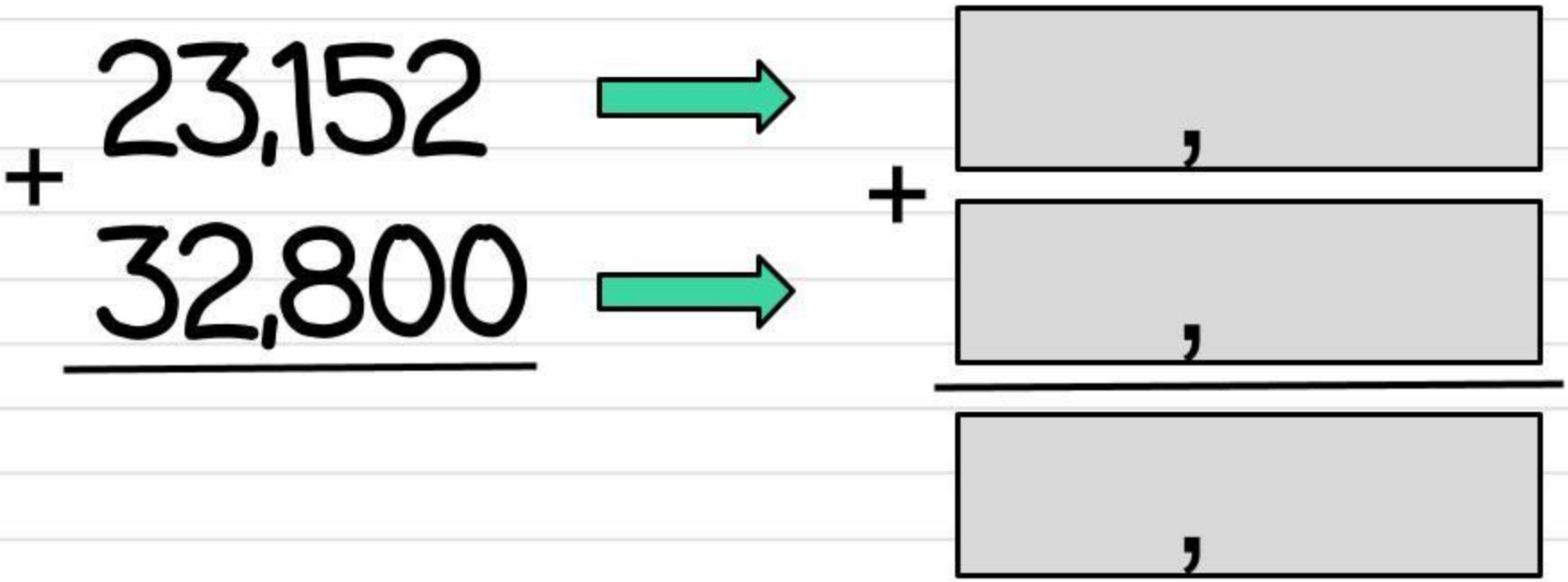


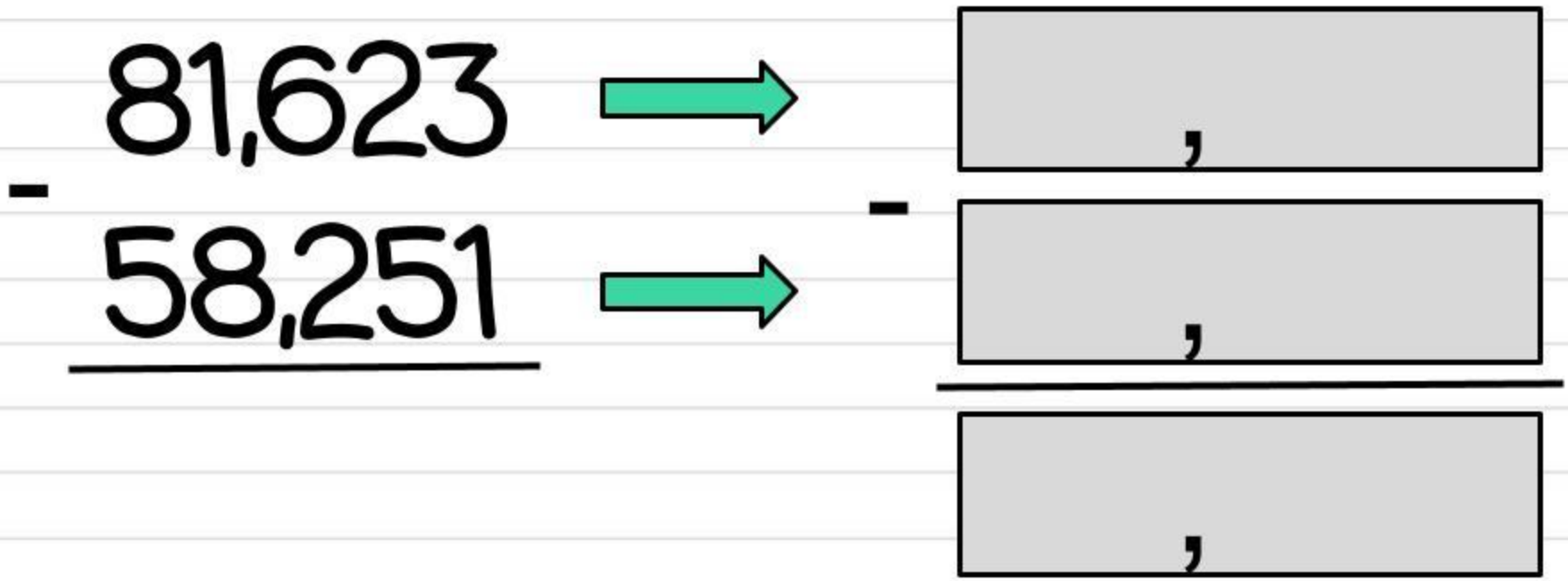

1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *ten thousand* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.



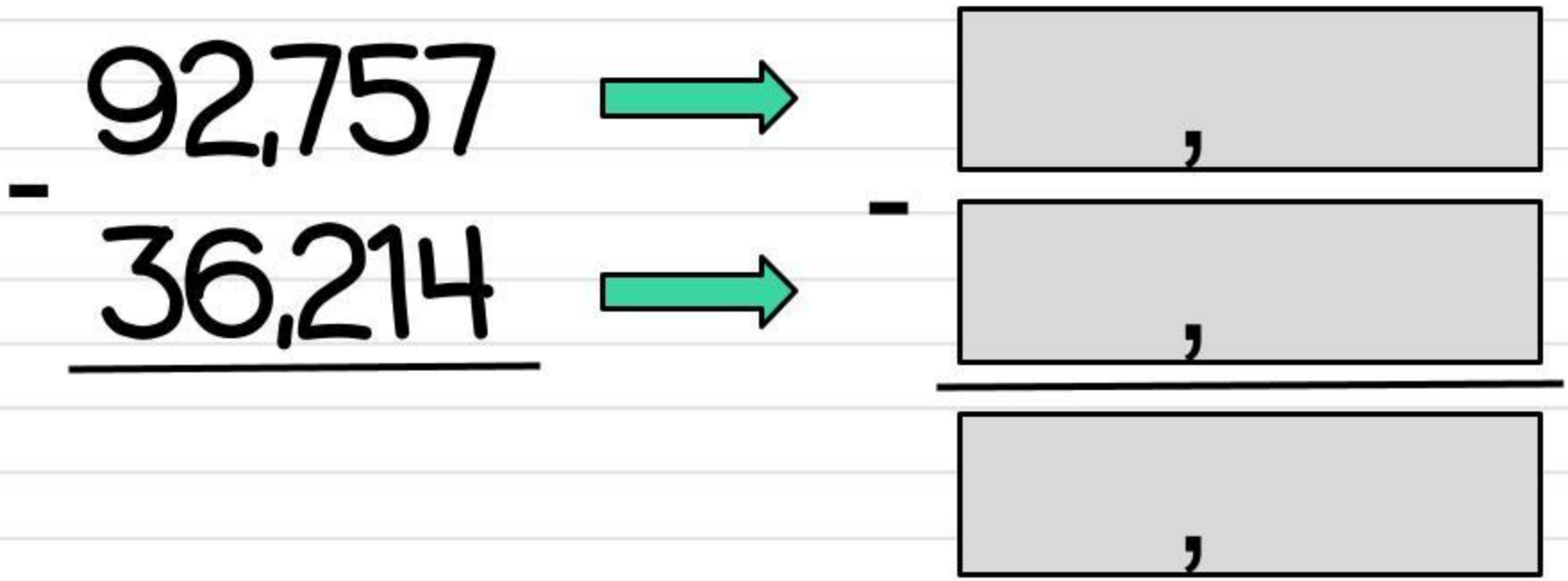

1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *ten thousand* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.




1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *ten thousand* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.




1 2 3 4 5 6 7 8 9 0

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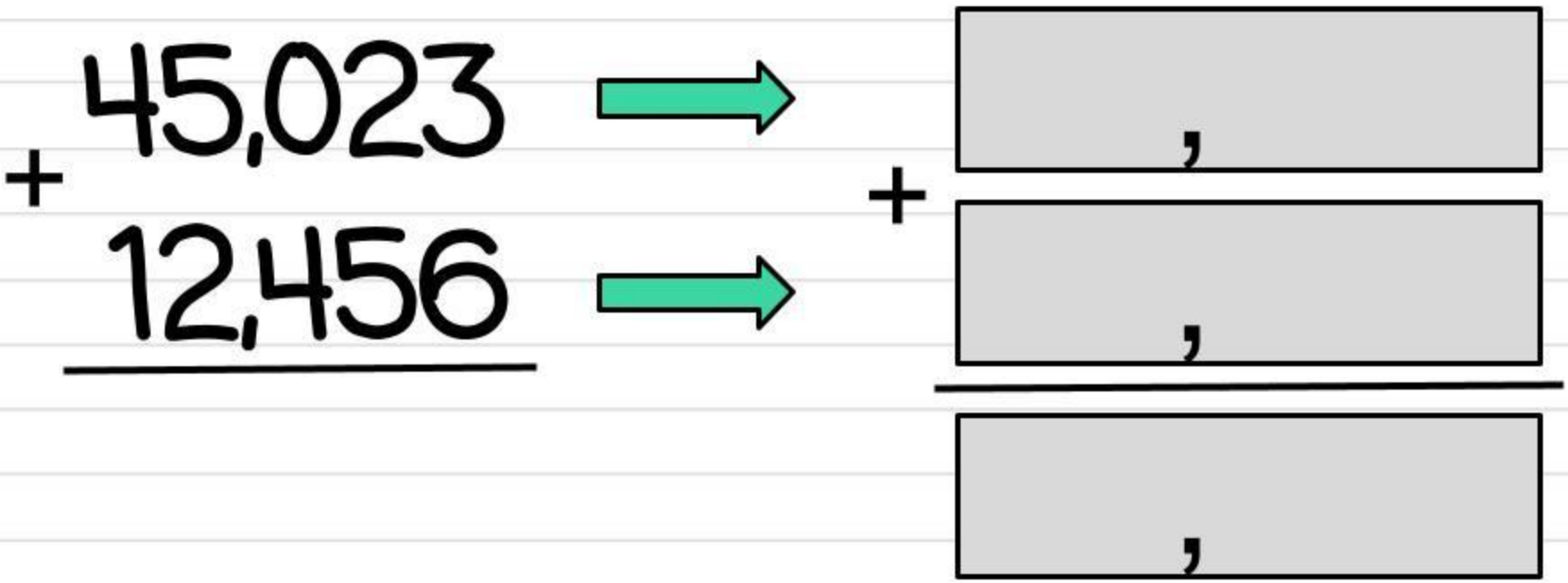
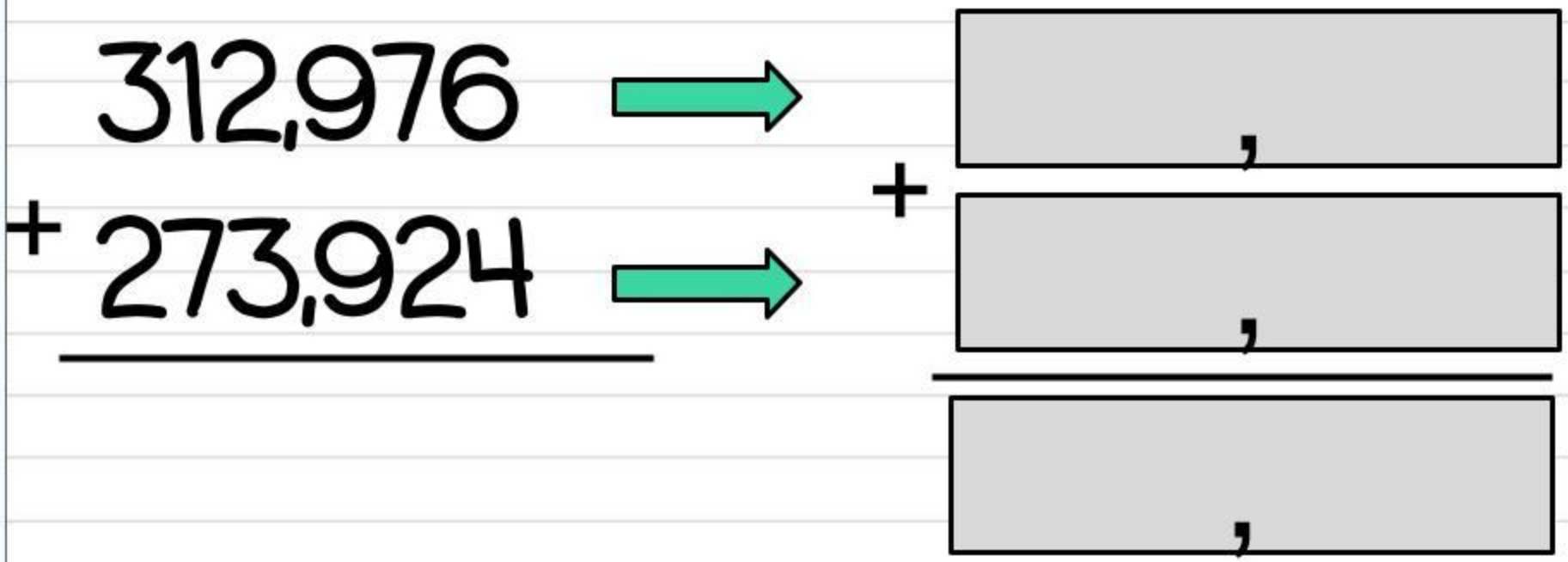



1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred thousand* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.




1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred thousand* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.

673,825 → [ , ]

- 234,044 → [ , ]

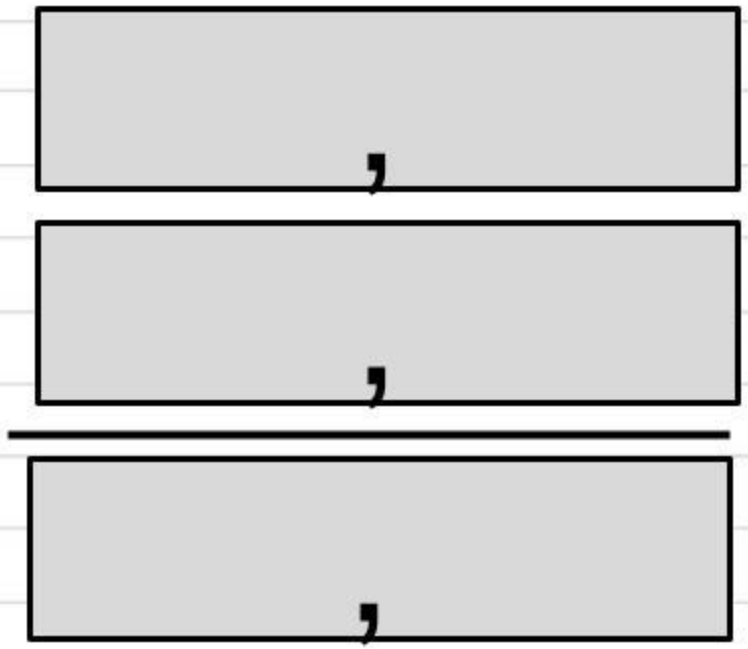
[ , ]

1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred thousand* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.

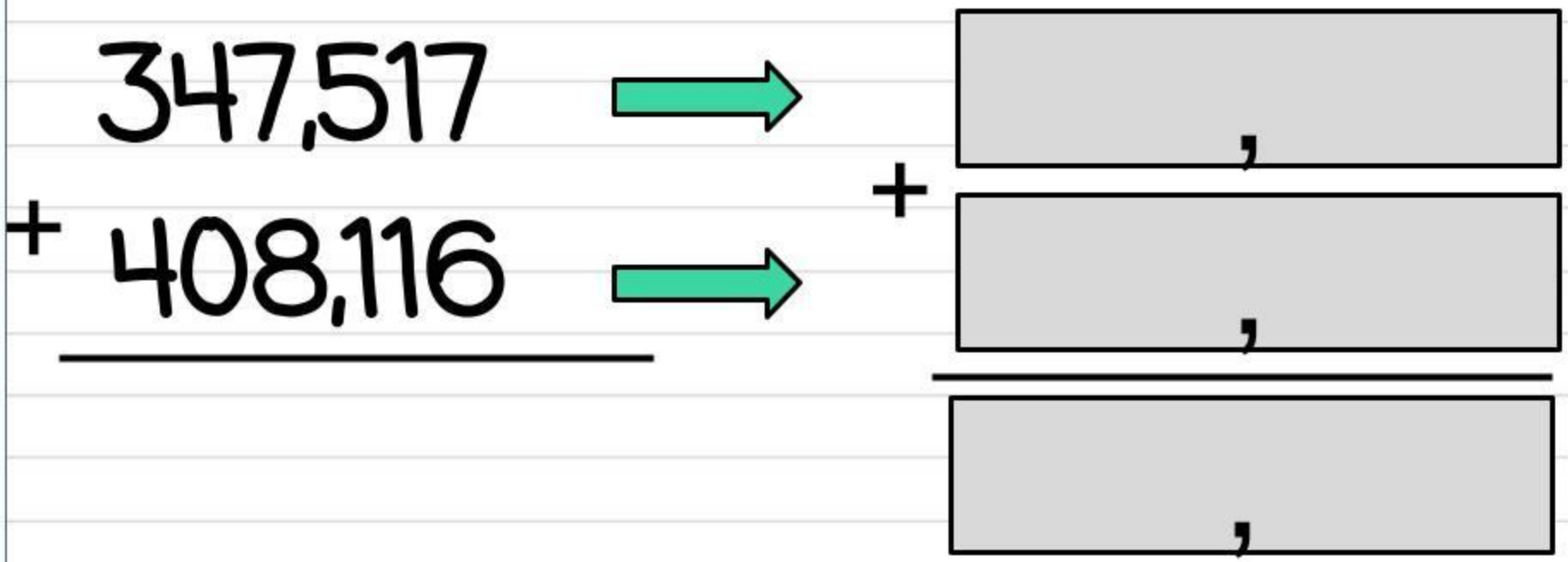
586,128 →

- 179,804 →



1 2 3 4 5 6 7 8 9 0

Round each number to the nearest *hundred thousand* to find the sum (+) or difference (-). Drag and drop the numbers to show your answers.




1 2 3 4 5 6 7 8 9 0

Estimate the sum by rounding each number to the nearest *hundred*. Drag and drop your answer into the box.

$$2{,}629 + 6{,}342 = \square$$

$$1{,}582 + 5{,}423 = \square$$

$$3{,}079 + 4{,}288 = \square$$

$$2{,}302 + 6{,}831 = \square$$

| | |
|---|---|
| 7,000 | 9,100 |
| 8,900 | 7,400 |

Estimate the difference by rounding each number to the nearest *hundred*. Drag and drop your answer into the box.

$$\begin{array}{r} 9{,}271 \\ -\ 4{,}527 \\ \hline \end{array} \qquad \square$$

$$\begin{array}{r} 6{,}436 \\ -\ 2{,}192 \\ \hline \end{array} \qquad \square$$

$$\begin{array}{r} 8{,}865 \\ -\ 3{,}073 \\ \hline \end{array} \qquad \square$$

$$\begin{array}{r} 7{,}518 \\ -\ 5{,}092 \\ \hline \end{array} \qquad \square$$

| | |
|---|---|
| 4,200 | 2,400 |
| 5,800 | 4,800 |

$$\begin{array}{r} 4{,}520 \\ +\ 3{,}143 \\ \hline \end{array} \qquad \begin{array}{r} 2{,}467 \\ +\ 5{,}098 \\ \hline \end{array}$$

$$\begin{array}{r} 5{,}942 \\ +\ 3{,}512 \\ \hline \end{array} \qquad \begin{array}{r} 6{,}029 \\ +\ 2{,}847 \\ \hline \end{array}$$

| | |
|---|---|
| 7,000 | 8,000 |
| 9,000 | 10,000 |

Estimate the difference by rounding each number to the nearest *thousand*. Drag and drop your answer into the box.

$$\begin{array}{r} 6{,}745 \\ -\ 3{,}241 \\ \hline \end{array} \qquad \square$$

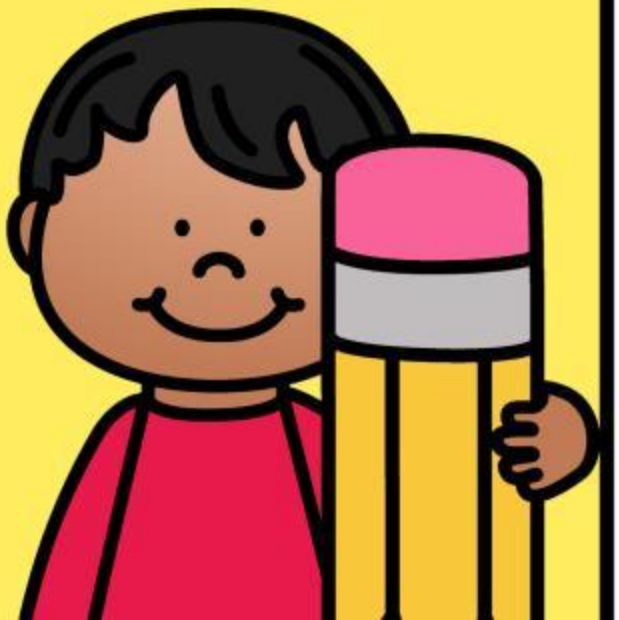
$$\begin{array}{r} 8{,}327 \\ -\ 5{,}830 \\ \hline \end{array} \qquad \square$$

$$\begin{array}{r} 6{,}783 \\ -\ 1{,}249 \\ \hline \end{array} \qquad \square$$

$$\begin{array}{r} 8{,}840 \\ -\ 4{,}459 \\ \hline \end{array} \qquad \square$$

| | |
|---|---|
| 2,000 | 4,000 |
| 5,000 | 6,000 |

Estimate the sum by rounding each number to the nearest *thousand*. Drag and drop your answer into the box.

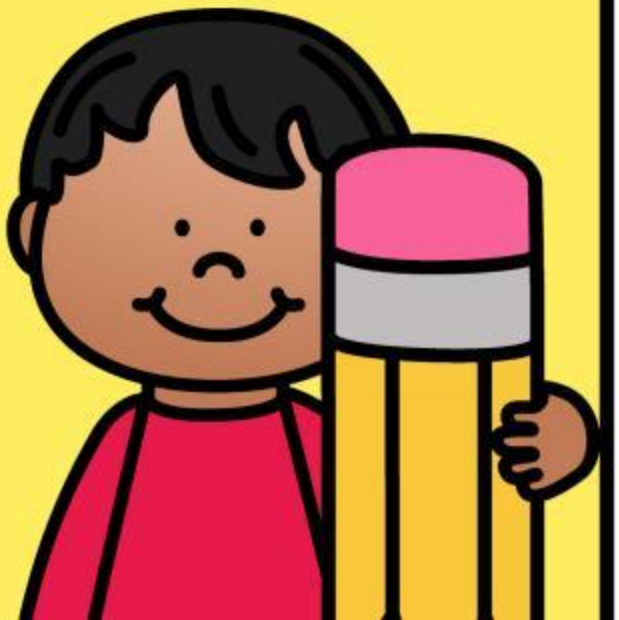


$$\begin{array}{r} 22{,}413 \\ +\ 58{,}093 \\ \hline \end{array} \qquad \begin{array}{r} 16{,}294 \\ +\ 38{,}741 \\ \hline \end{array}$$

$$\begin{array}{r} 18{,}034 \\ +\ 10{,}865 \\ \hline \end{array} \qquad \begin{array}{r} 54{,}730 \\ +\ 19{,}243 \\ \hline \end{array}$$

| | |
|---|---|
| 55,000 | 29,000 |
| 74,000 | 80,000 |

Estimate the difference by rounding each number to the nearest *thousand*. Drag and drop your answer into the box.



$$\begin{array}{r} 84{,}659 \\ -\ 37{,}283 \\ \hline \end{array} \qquad \begin{array}{r} 68{,}600 \\ -\ 15{,}203 \\ \hline \end{array}$$

$$\begin{array}{r} 58{,}872 \\ -\ 21{,}318 \\ \hline \end{array} \qquad \begin{array}{r} 36{,}246 \\ -\ 25{,}987 \\ \hline \end{array}$$

| | |
|---|---|
| 54,000 | 48,000 |
| 10,000 | 38,000 |

Estimate the sum by rounding each number to the nearest *ten thousand*. Drag and drop your answer into the box.

$$\begin{array}{r} 42{,}809 \\ +\ 22{,}645 \\ \hline \end{array} \qquad \square$$

$$\begin{array}{r} 49{,}989 \\ +\ 24{,}251 \\ \hline \end{array} \qquad \square$$

$$\begin{array}{r} 61{,}649 \\ +\ 19{,}790 \\ \hline \end{array} \qquad \square$$

$$\begin{array}{r} 39{,}732 \\ +\ 12{,}039 \\ \hline \end{array} \qquad \square$$

| | |
|---|---|
| 50,000 | 60,000 |
| 70,000 | 80,000 |

$$34{,}812 + 28{,}765 = \square$$

$$75{,}317 - 12{,}862 = \square$$

$$26{,}549 + 41{,}387 = \square$$

$$37{,}801 - 24{,}365 = \square$$

| | |
|---|---|
| 64,000 | 14,000 |
| 62,400 | 70,000 |

Estimate the difference by rounding each number to the nearest *ten thousand*. Drag and drop your answer into the box.

$$\begin{array}{r} 73{,}804 \\ -\ 25{,}672 \\ \hline \end{array} \qquad \begin{array}{r} 88{,}732 \\ -\ 17{,}005 \\ \hline \end{array}$$

$$\begin{array}{r} 62{,}470 \\ -\ 28{,}582 \\ \hline \end{array} \qquad \begin{array}{r} 76{,}931 \\ -\ 18{,}045 \\ \hline \end{array}$$

| | |
|---|---|
| 30,000 | 40,000 |
| 60,000 | 70,000 |

$$\begin{array}{r} 172{,}028 \\ +\ 235{,}014 \\ \hline \end{array}$$

$$\begin{array}{r} 324{,}710 \\ +\ 485{,}032 \\ \hline \end{array}$$

$$\begin{array}{r} 813{,}047 \\ -\ 522{,}132 \\ \hline \end{array}$$

$$\begin{array}{r} 743{,}215 \\ -\ 198{,}367 \\ \hline \end{array}$$

| | |
|---|---|
| 500,000 | 291,000 |
| 400,000 | 810,000 |

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Whitt's End

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