

ADDITION

(Using expanded form)

We can also add numbers using their **expanded notation** form. We expand each number and then add their common place value numbers. We do addition using expanded form in the following way.

For example: Solve $567 + 234$

We will first write the numbers in their expanded form

$$\begin{array}{r}
 567 \\
 + 234 \\
 \hline
 \end{array}
 \quad \Rightarrow \quad
 \begin{array}{r}
 \text{H} \quad \text{T} \quad \text{U} \\
 500 + 60 + 4 \\
 200 + 30 + 4 \\
 \hline
 700 + 90 + 8 \\
 \text{↻} \\
 700 + 90 + 9 = 798
 \end{array}$$

Now we will add the units, tens and hundreds together vertically.

Now we will add them to get the sum

So, $567 + 234 = 798$

When there is **regrouping** involved in addition, we add in the following way.

For example: Solve $238 + 423$

We will first write the numbers in their expanded form

$$\begin{array}{r}
 238 \\
 + 423 \\
 \hline
 \end{array}
 \quad \Rightarrow \quad
 \begin{array}{r}
 \text{H} \quad \text{T} \quad \text{U} \\
 200 + 30 + 8 \\
 400 + 20 + 3 \\
 \hline
 600 + 50 + 11 \\
 \text{↻} \\
 600 + 50 + 10 + 1 \\
 \text{↻} \\
 600 + 60 + 1 = 661
 \end{array}$$

Now we will add the units, tens and hundreds vertically

We know that $11 = 1 \text{ ten} + 1 \text{ unit}$. So we will **REGROUP!**

So, $238 + 423 = 661$