Answer on Question#38548 - Math- Algebra

Question: What are the sums of the following pairs of numbers?

a) 45 and 67
b) 2366 and 734
c) 399 and 60987
d) 908.34 and 456.88

Solution.

a) 45 and 67

Let us separate the addends into **units** and **tens**:

$$45 = 40 + 5$$
$$67 = 60 + 7$$

and add the **units** first:

$$5 + 7 = 12.$$

Now add the **tens**:

$$40 + 60 = 100.$$

After that, we need to add the two numbers from previous steps:

$$100 + 12 = 112.$$

We can also use column addition:

$$\begin{array}{r} 4\,5 \\ +\ 6\,7 \\ \hline 1\,1\,2 \end{array}$$

b) 2366 and 734

Similarly to the previous problem, separate the addends into **units**, **tens**, **hundreds** and **thousands**:

$$2366 = 2000 + 300 + 60 + 6$$
$$734 = 700 + 30 + 4$$

and add the **units** first:

$$6 + 4 = 10.$$

Then, add the **tens**:

$$60 + 30 = 90,$$

and **hundreds**:

$$300 + 700 = 1000.$$

Note that 734 is less than 1000, so for **thousands** we have

$$2000 + 0 = 2000.$$

Now, let us add the sums of units, tens, hundreds and thousands:

$$2000 + 1000 + 90 + 10 = 3000 + 100 = 3100.$$

Or, using column addition,

$$\begin{array}{r} 2\,3\,6\,6 \\ +\ \ 7\,3\,4 \\ \hline 3\,1\,0\,0 \end{array}$$

c) 399 and 60987

Note that according to the commutative law of addition, $399 + 60987 = 60987 + 399$.

As before, separate the addends into **units**, **tens**, **hundreds, thousands** and **tens of thousands**:

$$60987 = 60000 + 900 + 80 + 7$$
$$399 = 300 + 90 + 9$$

and add the **units**:

$$7 + 9 = 16,$$

tens:

$$80 + 90 = 170,$$

and **hundreds**:

$$900 + 300 = 1200.$$

For **thousands** and **tens of thousands**, we have

$$60000 + 0 = 60000.$$

Now add the numbers from previous steps:

$$60000 + 1200 + 170 + 16 = 60000 + 1200 + 186 = 60000 + 1386 = 61386,$$

or

$$\begin{array}{r} 6\,0\,9\,8\,7 \\ +\quad\;\; 3\,9\,9 \\ \hline 6\,1\,3\,8\,6 \end{array}$$

d) 908.34 and 456.88

These numbers are not integers; we can add the fractional part first (in the same manner as we did for integers). To do this, we need to repeat the already familiar procedure:

$$908.34 = 900 + 8 + 0.3 + 0.04$$
$$456.88 = 400 + 50 + 6 + 0.8 + 0.08$$

Now, add the **fractional** part:

$$0.04 + 0.08 = 0.12$$

and

$$0.3 + 0.8 = 1.1.$$

Next, add the **units**:

$$8 + 6 = 14,$$

tens:

$$0 + 50 = 50$$

and **hundreds**:

$$900 + 400 = 1300.$$

Finally, add these sums together:

$$1300 + 50 + 14 + 1.1 + 0.12 = 1300 + 50 + 14 + 1.22 = 1300 + 50 + 15.22 =$$
$$= 1300 + 65.22 = 1365.22.$$

Or, using column addition:

$$\begin{array}{r} 9\,0\,8.3\,4 \\ +\quad 4\,5\,6.8\,8 \\ \hline 1\,3\,6\,5.2\,2 \end{array}$$

Answer.

a) 112
b) 3100
c) 61386
d) 1365.22