

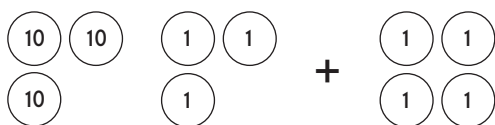
Unit 2 : Addition and Subtraction

Friendly Notes

Mental Calculation

We add two numbers to find the **sum**.

1. Find the sum of 33 and 4.



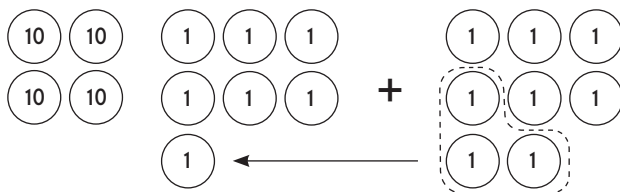
$$33 + 4 = 37$$

Add the ones first.

$$\begin{array}{r} 33 + 4 \\ \swarrow \quad \searrow \\ 30 \quad 3 \\ 3 + 4 = 7 \\ 30 + 7 = 37 \end{array}$$



2. Find the sum of 47 and 8.



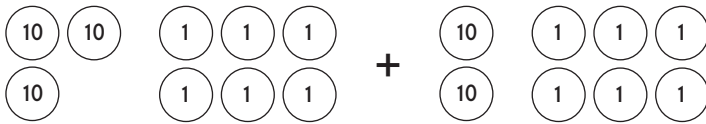
$$47 + 8 = 55$$

Make a 10 first.

$$\begin{array}{r} 47 + 8 \\ \swarrow \quad \searrow \\ 3 \quad 5 \\ 47 + 3 = 50 \\ 50 + 5 = 55 \end{array}$$



3. Find the sum of 36 and 26.



$$36 \xrightarrow{+ 20} 56 \xrightarrow{+ 6} 62$$



$$\begin{array}{r} 36 + 26 \\ \swarrow \quad \searrow \\ 20 \quad 6 \end{array}$$

Add 20 to 36 first.

$$\begin{array}{r} 56 + 6 \\ \swarrow \quad \searrow \\ 4 \quad 2 \end{array}$$

$$56 + 4 = 60$$

$$60 + 2 = 62$$



$$36 + 26 = 62$$

4. Add 47 and 15.

$$\begin{array}{r} 47 + 15 \\ \swarrow \quad \searrow \\ 3 \quad 12 \end{array}$$

$$47 + 3 = 50$$

$$50 + 12 = 62$$



$$47 + 15 = 62$$

5. Add 35 and 59.

59 is one less than 60.

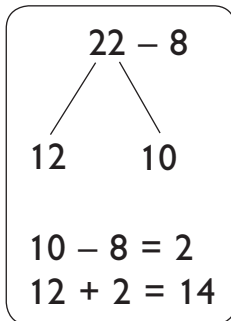
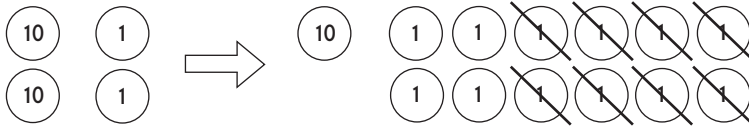
$$35 \xrightarrow{+ 60} 95 \xrightarrow{- 1} 94$$



$$35 + 59 = 94$$

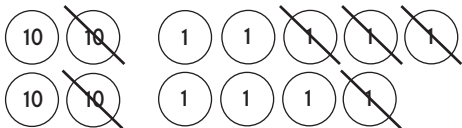
We subtract the smaller number from the greater number to find the **difference**.

6. Find the difference between 22 and 8.



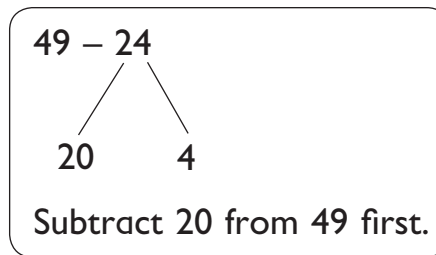
$$22 - 8 = 14$$

7. Find the difference between 49 and 24.

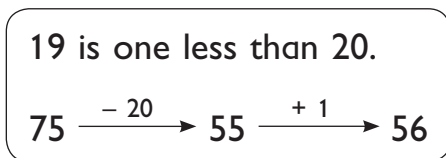


$$49 \xrightarrow{-20} 29 \xrightarrow{-4} 25$$

$$49 - 24 = 25$$



8. Subtract 19 from 75.



$$75 - 19 = 56$$

Sum and Difference


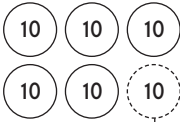
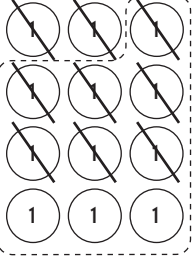

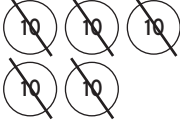



To add two 3-digit numbers, we add the ones first, followed by the tens, and then the hundreds.

1. Find the sum of 362 and 259.

<p>Add the ones.</p> $\begin{array}{r} ^1 \\ 362 \\ + 259 \\ \hline 1 \end{array}$				<p>10 ones make 1 ten.</p>
<p>Add the tens.</p> $\begin{array}{r} ^1 ^1 \\ 362 \\ + 259 \\ \hline 21 \end{array}$				<p>10 tens make 1 hundred.</p>
<p>Add the hundreds.</p> $\begin{array}{r} ^1 ^1 \\ 362 \\ + 259 \\ \hline 621 \end{array}$				

To find the difference between two 3-digit numbers, we subtract the ones first, followed by the tens, and then the hundreds.

2. Find the difference between 362 and 259.

<p>Subtract the ones.</p> $\begin{array}{r} ^5 ^{12} \\ 362 \\ - 259 \\ \hline 3 \end{array}$			
<p>Subtract the tens.</p> $\begin{array}{r} ^5 ^{12} \\ 362 \\ - 259 \\ \hline 0 3 \end{array}$			
<p>Subtract the hundreds.</p> $\begin{array}{r} ^5 ^{12} \\ 362 \\ - 259 \\ \hline 103 \end{array}$			

We can check our answers with addition.

$$\begin{array}{r} ^1 \\ 259 \\ + 103 \\ \hline 362 \end{array}$$



Adding Ones, Tens, Hundreds, and Thousands

To find the sum of two 4-digit numbers:

Step 1: Add the ones.

Step 2: Add the tens.

Step 3: Add the hundreds.

Step 4: Add the thousands.

Change 10 ones for 1 ten,
10 tens for 1 hundred, or
10 hundreds for 1 thousand,
when we have more than 10 ones, 10 tens,
or 10 hundreds to add.

Find the sum of 3,098 and 2,386.

Estimate the value by rounding each number to the nearest thousand and the adding.

3,098 is about 3,000.

2,386 is about 2,000.

$3,000 + 2,000 = 5,000$

The answer should be around 5,000.



Add the ones.

$$\begin{array}{r} 3,0\overset{1}{9}8 \\ + 2,386 \\ \hline 4 \end{array}$$

Change 10 ones for 1 ten.

Add the tens.

$$\begin{array}{r} 3,0\overset{1}{9}8 \\ + 2,386 \\ \hline 84 \end{array}$$

Change 10 tens for 1 hundred.

Add the hundreds.

$$\begin{array}{r} 3,0\overset{1}{9}8 \\ + 2,386 \\ \hline 484 \end{array}$$

Add the thousands.

$$\begin{array}{r} 3,0\overset{1}{9}8 \\ + 2,386 \\ \hline 5,484 \end{array}$$

5,484 is close to the estimated answer of 5,000.

So, the answer is reasonable.

Subtracting Ones, Tens, Hundreds, and Thousands

To find the difference between two 4-digit numbers:

Step 1: Subtract the ones.

Step 2: Subtract the tens.

Step 3: Subtract the hundreds.

Step 4: Subtract the thousands.

Change 1 ten for 10 ones,
1 hundred for 10 tens, or
1 thousand for 10 hundreds,
when we do not have enough ones, tens,
or hundreds to take away from.

Find the difference between 4,098 and 1,795.

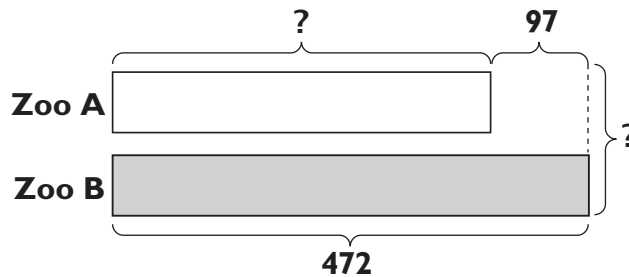
Subtract the ones.	Subtract the tens.	Subtract the hundreds.	Subtract the thousands.
$\begin{array}{r} 4,098 \\ - 1,795 \\ \hline 3 \end{array}$	$\begin{array}{r} 4,098 \\ - 1,795 \\ \hline 03 \end{array}$	$\begin{array}{r} \overset{3}{\cancel{4}}, \overset{10}{\cancel{0}}98 \\ - 1,795 \\ \hline 303 \end{array}$	$\begin{array}{r} \overset{3}{\cancel{4}}, \overset{10}{\cancel{0}}98 \\ - 1,795 \\ \hline 2,303 \end{array}$
		Change 1 thousand for 10 hundreds.	

Two-step Word Problems

Models can help us solve addition and subtraction word problems more easily.

There are 472 animals at Zoo B.
There are 97 fewer animals at Zoo A than Zoo B.
How many animals are there altogether?

We draw a model to solve the word problem.



Step 1:
Find the number of animals in Zoo A.



$$472 - 97 = 375$$

There are 375 animals in Zoo A.

Step 2:
Find the total number of animals.



$$375 + 472 = 847$$

There are 847 animals altogether.