

3 - 1

Addition and Subtraction

Addition (1)

Example Calculate $482 + 164$ by using the algorithm.

Line up the numbers vertically in each place.

Hundreds	Tens	Ones
4	8	2
+	1	6
<hr/>		
		6

Calculation of the ones place
 $2 + 4 = 6$
 Write a 6 in the ones place.

Calculation of the tens place
 $8 + 6 = 14$
 Regroup 1 to the hundreds place.

Hundreds	Tens	Ones
4	8	2
+	1	6
<hr/>		
6	4	6

Calculation of the hundreds place
 The regrouped 1 and 4 make 5.
 $5 + 1 = 6$
 Write a 6 in the hundreds place.

$482 + 164 = 646$

Calculate the following addition problems by using the algorithm.

1

Hundreds	Tens	Ones
3	7	4
+	2	6
<hr/>		

2

Hundreds	Tens	Ones
5	4	7
+	2	8
<hr/>		

3 $294 + 354$

4 $422 + 194$

5 $462 + 275$

6 $563 + 162$

7 $785 + 132$

8 $672 + 234$

9 $567 + 352$

10 $121 + 582$

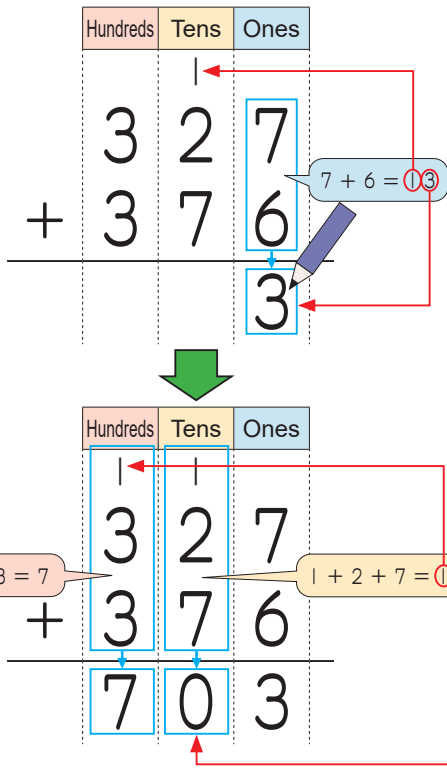
3		4		5		6	
7		8		9		10	

3 - 2

Addition and Subtraction

Addition (2)

Example Calculate $327 + 376$ by using the algorithm.



Line up the numbers vertically in each place.

Calculation of the ones place

$$7 + 6 = 13$$

Regroup 1 in the tens place.

Calculation of the tens place

The regrouped 1 and 2 make 3.

$$3 + 7 = 10$$

Regroup 1 to the hundreds place.

Calculation of the hundreds place

The regrouped 1 and 3 make 4.

$$4 + 3 = 7$$

$$327 + 376 = 703$$

Calculate the following addition problems by using the algorithm.

1

Hundreds	Tens	Ones
4	2	5
+	1	7
<hr/>		

Callouts: $1 + 4 + 1$ (hundreds), $1 + 2 + 7$ (tens), $5 + 7$ (ones)

2

Hundreds	Tens	Ones
3	7	6
+	4	2
<hr/>		

Callouts: $1 + 3 + 4$ (hundreds), $1 + 7 + 2$ (tens), $6 + 5$ (ones)

3 $637 + 269$

4 $584 + 238$

5 $197 + 378$

6 $463 + 238$

7 $328 + 495$

8 $719 + 185$

9 $449 + 153$

10 $635 + 197$

3		4		5		6	
7		8		9		10	

3 - 4

Addition and Subtraction

Addition (4)

Example Calculate $3864 + 4567$ by using the algorithm.

One Thousands	Hundreds	Tens	Ones
3	8	6	4
+	4	5	6
<hr/>			
			1

$4 + 7 = 11$

One Thousands	Hundreds	Tens	Ones
3	8	6	4
+	4	5	6
<hr/>			
		3	1

$1 + 6 + 6 = 13$

One Thousands	Hundreds	Tens	Ones
3	8	6	4
+	4	5	6
<hr/>			
8	4	3	1

$1 + 3 + 4 = 8$

$1 + 8 + 5 = 14$

Line up the numbers vertically in each place.

Calculation of the ones place

$$4 + 7 = 11$$

Regroup 1 in the tens place.

Write a 1 in the ones place.

Calculation of the tens place

The regrouped 1 and 6 make 7.

$$7 + 6 = 13$$

Regroup 1 to the hundreds place.

Write a 3 in the tens place.

Calculation of the hundreds place

The regrouped 1 and 8 make 9.

$$9 + 5 = 14$$

Regroup 1 to the one thousands place.

Write a 4 in the hundreds place.

Calculation of the one thousands place

The regrouped 1 and 3 make 4.

$$4 + 4 = 8$$

Write a 8 in the one thousands place.

$$3864 + 4567 = 8431$$

Calculate the following addition problems by using the algorithm.

1

One Thousands	Hundreds	Tens	Ones
2	8	6	4
+	3	5	6
<hr/>			
			0

$1 + 2 + 3$

$1 + 8 + 5$

$1 + 6 + 6$

$4 + 8$

2

One Thousands	Hundreds	Tens	Ones
6	2	4	6
+	1	8	7
<hr/>			
			3

$1 + 6 + 1$

$1 + 2 + 8$

$1 + 4 + 7$

$6 + 5$

3 $2575 + 1698$

4 $1483 + 3737$

5 $5368 + 1936$

6 $4567 + 2684$

7 $7531 + 1789$

8 $3642 + 2578$

3		4		5	
6		7		8	

3 - 5

Addition and Subtraction

Subtraction (1)

Example Calculate $315 - 194$ by using the algorithm.

The diagram illustrates the subtraction algorithm for $315 - 194$ in two stages:

Stage 1: The numbers are aligned vertically by place value (Hundreds, Tens, Ones). The ones place calculation is $5 - 4 = 1$. The tens place calculation is $11 - 9 = 2$, where the 11 is formed by regrouping 1 from the hundreds place and 1 from the original tens place. A blue box highlights the 2 in the tens place.

Stage 2: The hundreds place calculation is $2 - 1 = 1$. The final result is 121 .

Line up the numbers vertically in each place.

Calculation of the ones place

$$5 - 4 = 1$$

Calculation of the tens place

You cannot take 9 from 1, so you need to regroup from the hundreds place.

$$11 - 9 = 2$$

Write a 2 in the tens place.

Calculation of the hundreds place

Since you regrouped, it became 2.

$$2 - 1 = 1$$

Write an 1 in the hundreds place.

$$315 - 194 = 121$$

Calculate the following subtraction problems by using the algorithm.

1

Hundreds	Tens	Ones
2	12	
3	2	6
- 1	8	3
<hr/>		

Calculations: $2 - 1 = 1$, $6 - 3 = 3$, $12 - 8 = 4$

2

Hundreds	Tens	Ones
8	11	
9	1	4
- 3	2	2
<hr/>		

Calculations: $8 - 3 = 5$, $4 - 2 = 2$, $11 - 2 = 9$

3 $628 - 273$

4 $765 - 471$

5 $727 - 196$

6 $825 - 263$

7 $537 - 376$

8 $468 - 281$

9 $813 - 642$

10 $567 - 186$

3		4		5		6	
7		8		9		10	

3 - 6

Addition and Subtraction

Subtraction (2)

Example Calculate $314 - 128$ by using the algorithm.

Line up the numbers vertically in each place.

Calculation of the ones place

Regroup from the tens place.

$$14 - 8 = 6$$

Write a 6 in the ones place.

Calculation of the tens place

Since you regrouped, it became 0.

Regroup from the hundreds place.

$$10 - 2 = 8$$

Write a 8 in the tens place.

Calculation of the hundreds place

Since you regrouped, it became 2.

$$2 - 1 = 1$$

Write a 1 in the hundreds place.

$$314 - 128 = 186$$

Calculate the following subtraction problems by using the algorithm.

1

Hundreds	Tens	Ones
3	11	14
3	11	14
4	2	4
- 2	3	8

Callouts: $3 - 2 = 1$, $14 - 8 = 6$, $11 - 3 = 8$

2

Hundreds	Tens	Ones
5	12	12
5	12	12
6	3	2
- 3	7	7

Callouts: $5 - 3 = 2$, $12 - 7 = 5$, $12 - 7 = 5$

3 $758 - 179$

4 $814 - 475$

5 $935 - 289$

6 $632 - 385$

7 $321 - 123$

8 $543 - 345$

9 $765 - 567$

10 $987 - 789$

3		4		5		6	
7		8		9		10	

3 - 7

Addition and Subtraction

Subtraction (3)

Example Calculate $405 - 156$ by using the algorithm.

Step 1: $405 - 156$. $15 - 6 = 9$

Step 2: $9 - 5 = 4$

Step 3: $3 - 1 = 2$

Final result: 249

Line up the numbers vertically in each place.

Calculation of the ones place

Since you cannot regroup from the tens place, you can regroup from the hundreds place.

Regroup 10 tens in the tens place.

Then regroup 10 ones in the ones place.

$$15 - 6 = 9$$

Calculation of the tens place

Since you regrouped, it became 9.

$$9 - 5 = 4$$

Calculation of the hundreds place

Since you regrouped, it became 3.

$$3 - 1 = 2$$

$$405 - 156 = 249$$

Calculate the following subtraction problems by using the algorithm.

1

Hundreds	Tens	Ones
3	9	17
4	0	7
4	0	7
-	-	-
2	5	8

$3 - 2 = 1$ (Note: diagram shows 3-2=2, likely a typo for 3-1=2)

$17 - 8 = 9$

$9 - 5 = 4$

2

Hundreds	Tens	Ones
5	9	12
6	0	2
6	0	2
-	-	-
3	7	6

$5 - 3 = 2$

$12 - 6 = 6$

$9 - 7 = 2$

3 $603 - 306$

4 $704 - 407$

5 $805 - 508$

6 $906 - 609$

7 $907 - 709$

8 $806 - 608$

9 $705 - 507$

10 $604 - 406$

3		4		5		6	
7		8		9		10	

3 - 8

Addition and Subtraction

Subtraction (4)

Example Calculate $1000 - 347$ by using the algorithm.

Line up the numbers vertically in each place.

Calculation of the ones place

Since you cannot regroup from the tens place and hundreds place, you can regroup from the one thousands place.

Regroup 10 hundreds in the hundreds place.

Then regroup 10 tens in the tens place.

Then regroup 10 ones in the ones place.

$$10 - 7 = 3$$

Calculation of the tens place

Since you regrouped, it became 9.

$$9 - 4 = 5$$

Calculation of the hundreds place

Since you regrouped, it became 9.

$$9 - 3 = 6$$

Calculation of the one thousands place

Since you regrouped, it became 0.

$$1000 - 347 = 653$$

Calculate the following subtraction problems by using the algorithm.

1

One Thousands	Hundreds	Tens	Ones
1	0	0	0
-	4	5	8

Callouts: $10 - 8$ (ones), $9 - 5$ (tens), $9 - 4$ (hundreds)

2

One Thousands	Hundreds	Tens	Ones
1	0	0	0
-	2	7	9

Callouts: $10 - 9$ (ones), $9 - 7$ (tens), $9 - 2$ (hundreds)

3 $1000 - 515$

4 $1000 - 716$

5 $1000 - 687$

6 $1000 - 387$

7 $1000 - 195$

8 $1000 - 934$

3		4		5	
6		7		8	

3 - 9

Addition and Subtraction

Subtraction (5)

Example Calculate $5102 - 4398$ by using the algorithm.

One Thousands	Hundreds	Tens	Ones
5	1	0	12
- 4	3	9	8
$12 - 8 = 4$			
			4

Line up the numbers vertically in each place.

Calculation of the ones place

Since you cannot regroup from the tens place, you can regroup from the hundreds place.

Regroup 10 tens in the tens place.

Then regroup 10 ones in the ones place.

$$12 - 8 = 4$$

One Thousands	Hundreds	Tens	Ones
5	1	0	12
- 4	3	9	8
$9 - 9 = 0$			
		0	4

Calculation of the tens place

Since you regrouped, it became 9.

$$9 - 9 = 0$$

Write a 0 in the tens place.

Calculation of the hundreds place

Since you regrouped, it became 0. Therefore, you need to regroup from the one thousands place.

$$10 - 3 = 7$$

One Thousands	Hundreds	Tens	Ones
4	10	0	12
5	1	0	12
- 4	3	9	8
$4 - 4 = 0$			
+	4	3	9
$10 - 3 = 7$			
	7	0	4

Calculation of the one thousands place

Since you regrouped, it became 4.

$$4 - 4 = 0$$

Because it is 0, you do not need to write a 0.

$$5102 - 4398 = 704$$

Calculate the following subtraction problems by using the algorithm.

1

One Thousands	Hundreds	Tens	Ones
5	11	9	12
- 5	4	7	8
$11 - 4$			
6	2	0	2
$5 - 5$			
$12 - 8$			
$9 - 7$			

2

One Thousands	Hundreds	Tens	Ones
7	10	9	13
- 7	6	9	5
$10 - 6$			
8	1	0	3
$7 - 7$			
$13 - 5$			
$9 - 9$			

3 $3406 - 2747$

4 $5105 - 4736$

5 $4201 - 3697$

6 $7205 - 6897$

7 $9204 - 8375$

8 $2503 - 1578$

3		4		5	
6		7		8	

Example Calculate the following in your head.

1 $48 + 36 = \boxed{84}$

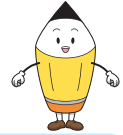
$$\begin{array}{r} 48 + 36 \\ \begin{array}{c} \diagdown \quad \diagup \\ (30) \quad (6) \end{array} \\ \text{First, } 48 + 30 = 78 \\ \text{Then } 78 + 6 = 84 \end{array}$$



2 $46 - 17 = \boxed{29}$

$$\begin{array}{r} 46 - 17 \\ \begin{array}{c} \diagdown \quad \diagup \\ (10) \quad (7) \end{array} \\ \text{First, } 46 - 10 = 36 \\ \text{Then } 36 - 7 = 29 \end{array}$$

1 Calculate the following addition problems in your head.



1 $21 + 36 = \boxed{}$

$$\begin{array}{r} 21 + 36 \\ \begin{array}{c} \diagdown \quad \diagup \\ (30) \quad (6) \end{array} \end{array}$$

2 $15 + 53 = \boxed{}$

$$\begin{array}{r} 15 + 53 \\ \begin{array}{c} \diagdown \quad \diagup \\ (50) \quad (3) \end{array} \end{array}$$

3 $44 + 35 = \boxed{}$

4 $31 + 46 = \boxed{}$

5 $53 + 36 = \boxed{}$



6 $14 + 38 = \boxed{}$

7 $47 + 38 = \boxed{}$

8 $27 + 67 = \boxed{}$

9 $29 + 18 = \boxed{}$

10 $47 + 24 = \boxed{}$

2 Calculate the following subtraction problems in your head.



1 $85 - 13 = \boxed{}$

$$\begin{array}{r} 85 - 13 \\ \begin{array}{c} \diagdown \quad \diagup \\ (10) \quad (3) \end{array} \end{array}$$

2 $64 - 21 = \boxed{}$

$$\begin{array}{r} 64 - 21 \\ \begin{array}{c} \diagdown \quad \diagup \\ (20) \quad (1) \end{array} \end{array}$$

3 $56 - 45 = \boxed{}$

4 $38 - 15 = \boxed{}$

5 $38 - 17 = \boxed{}$



6 $73 - 35 = \boxed{}$

7 $41 - 28 = \boxed{}$

8 $90 - 65 = \boxed{}$

9 $82 - 49 = \boxed{}$

10 $94 - 47 = \boxed{}$

Example Calculate the following in your head.

1 $320 + 298 = \boxed{618}$

2 $1000 - 312 = \boxed{688}$

$320 + 298 = \boxed{}$
 Add 2 ↓ ↑ Subtract 2
 $320 + 300 = 620$



$1000 - 312 = \boxed{}$
 Subtract 1 ↓ ↑ Add 1
 $999 - 312 = 687$

1 Calculate the following addition problems in your head.

1 $220 + 298 = \boxed{}$

2 $350 + 398 = \boxed{}$

3 $240 + 498 = \boxed{}$

4 $510 + 199 = \boxed{}$

5 $330 + 299 = \boxed{}$

6 $340 + 399 = \boxed{}$

7 $710 + 197 = \boxed{}$

8 $140 + 297 = \boxed{}$

9 $560 + 397 = \boxed{}$

10 $130 + 496 = \boxed{}$

2 Calculate the following subtraction problems in your head.

1 $1000 - 322 = \boxed{}$

2 $1000 - 354 = \boxed{}$

3 $1000 - 682 = \boxed{}$

4 $1000 - 528 = \boxed{}$

5 $1000 - 456 = \boxed{}$

6 $1000 - 672 = \boxed{}$

7 $1000 - 582 = \boxed{}$

8 $1000 - 264 = \boxed{}$

9 $1000 - 878 = \boxed{}$

10 $1000 - 798 = \boxed{}$

3 - 12

Addition and Subtraction

Addition of Three Numbers

Example 1 Calculate the following in your head.

$$386 + 67 + 33 = \boxed{486}$$

It is fine that the addition is calculated in a different order.

$$\text{First } 67 + 33 = 100$$

$$\text{Then } 386 + 100 = 486$$



1 Calculate the following addition problems in your head.

① $475 + 67 + 33 = \boxed{}$

② $573 + 81 + 19 = \boxed{}$

③ $296 + 72 + 28 = \boxed{}$

④ $358 + 43 + 57 = \boxed{}$

Example 2 Calculate the following by using the algorithm.

Line up the numbers vertically in each place.

Calculation of the ones place

$$5 + 6 + 7 = 18$$

Regroup 1 to the tens place.

Calculation of the tens place

The regrouped 1 and 6 make 7.

$$7 + 3 + 4 = 14$$

Regroup 1 to the hundreds place.

Calculation of the hundreds place

The regrouped 1 and 3 make 4.

$$4 + 8 + 1 = 13$$

Regroup 1 to the one thousands place.

Calculation of the one thousands place

Write the regrouped 1.

$$365 + 836 + 147 = 1348$$

2 Calculate the following addition problems by using the algorithm.

①

One Thousands	Hundreds	Tens	Ones
	2	6	7
	4	4	3
+	6	7	4

②

One Thousands	Hundreds	Tens	Ones
	5	7	2
	7	6	1
+	4	5	9

③

One Thousands	Hundreds	Tens	Ones
	3	2	5
	4	6	6
+	5	1	3

④

One Thousands	Hundreds	Tens	Ones
	4	2	8
	3	8	7
+	2	5	4

3 - 13

Addition and Subtraction

Review

1 Calculate the following addition problems by using the algorithm.

1

		6	2	5
+		2	9	3
<hr/>				

2

		5	6	7
+		3	3	6
<hr/>				

3

		7	6	8
+		4	5	6
<hr/>				

4

		3	8	9
+		9	2	6
<hr/>				

5

	4	8	6	5
+	2	3	7	6
<hr/>				

6

	1	8	4	9
+	3	5	7	2
<hr/>				

2 Calculate the following subtraction problems by using the algorithm.

1

		6	5	4
-		4	5	6
<hr/>				

2

		9	8	7
-		7	8	9
<hr/>				

3

		6	0	0
-		3	8	5
<hr/>				

4

	1	0	0	0
-		4	5	6
<hr/>				

5

	1	0	0	0
-		2	9	8
<hr/>				

6

	3	5	0	5
-	2	8	5	8
<hr/>				

3 Calculate the following problems in your head.

1 $45 + 23 = \square$

2 $56 + 38 = \square$

3 $250 + 499 = \square$

4 $74 - 33 = \square$

5 $84 - 49 = \square$

6 $1000 - 257 = \square$