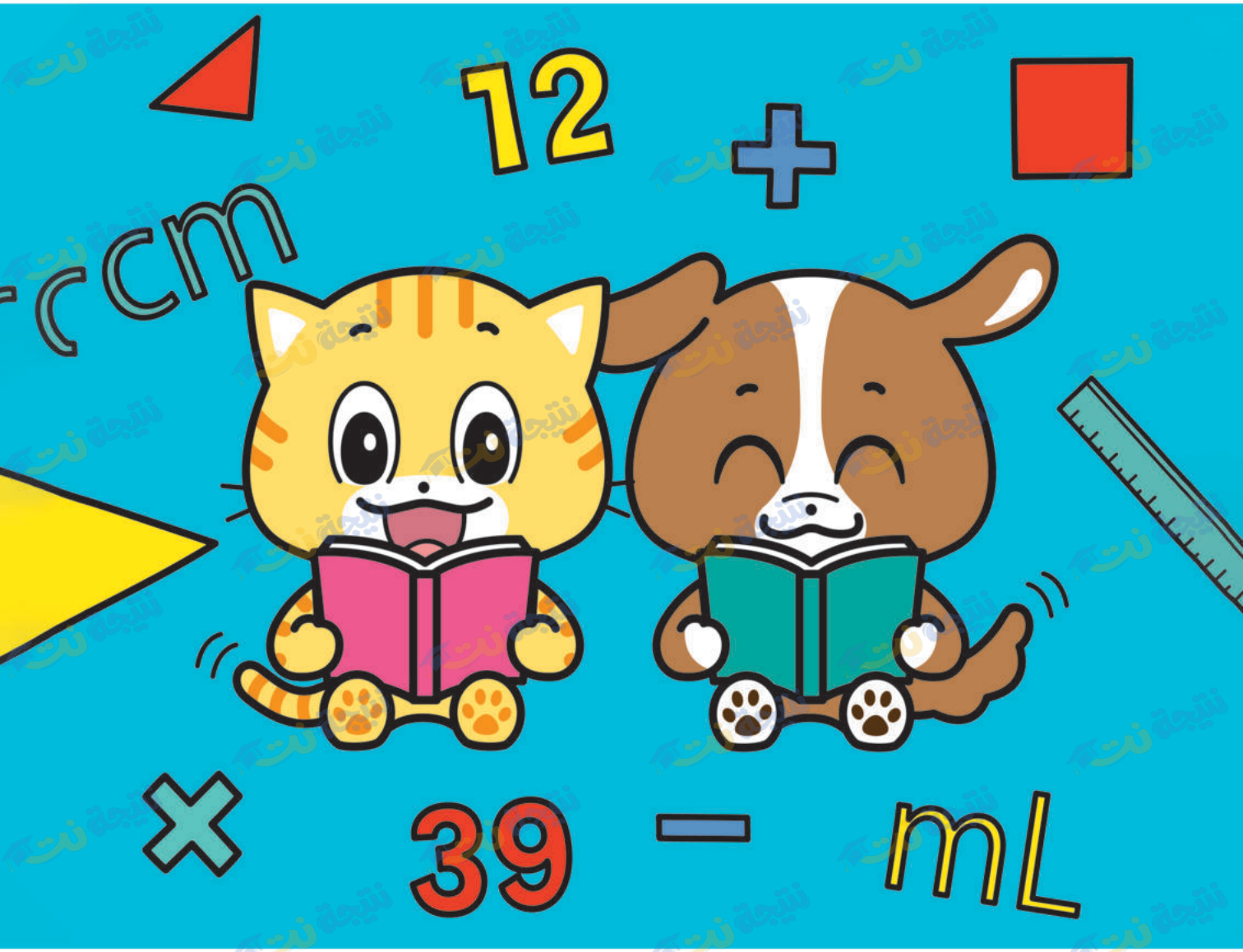
PRIMARY 2 Term 1

MATHEMATICS



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Editorial Team

Project Lead & Editorial Director

Maki Komizo

Editors & Writers

Miho Iga

Takayuki Kobayashi

Tomoaki Tsunoyama

Designers

Sayaka Higuchi

Shigeyuki Hatakeyama

The Central Administration for Curriculum Development

Mrs. Manal Abbas Ahmed Azkol

Dr. Mohammed Mohey El-Din Abdel Salam

Mrs. Eman Sayed Ramadan Mohammed

Mr. Samir Mohamed Sedawy

Mr. Sameh Abd Elbasset Elsayed Mohamed

Ms. Sabah Abd Elwahed

General Supervision

Dr. Gebriel Anwer Hemieda

Head of the Central Administration for Curriculum Development

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Introduction

In light of Egypt's Vision 2030 and the state's ongoing efforts to develop education, the Ministry of Education and Technical Education places great emphasis on updating school curriculums — particularly in mathematics—due to its vital role in fostering critical thinking skills, problem-solving abilities, and a focus on building a deep understanding of fundamental concepts, moving away from rote memorization, especially in the early stages. The content is organized in a gradual and systematic manner that enables students to progress smoothly from simple to complex concepts, linking mathematical concepts to real-life situations, and relying on interactive methods that include teamwork and discussion, making learning more enjoyable.

In this context, the Ministry has been keen to benefit from successful international experiences. This has led to collaboration between the Egyptian and Japanese sides in developing mathematics curriculums, given Japan's global excellence in this field, as evidenced by its notable achievements in international competitions, which reflect the strength of its curriculums and teaching methods.

From this concern, this book is the result of the contribution between the Ministry of Education and Technical Education and the Japanese side.

This book represents a first step within a comprehensive plan to develop mathematics curriculums across all grade levels, with the aim of building an integrated educational system that combines the best international practices with Egypt's authentic identity.

The Ministry of Education and Technical Education firmly believes that developing education is a true investment in the nation's future, and that updating curriculums is not an end in itself, but rather a means to build an aware, creative generation, capable of keeping pace with scientific and technological changes in today's world.

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Let's Learn Together!

Characters:



Brainy



Smarty



Genius

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TERM 1

Primary 2 Mathematics

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- Chapter 9 Mental Math Strategies — 118

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1-1 Graphs and Charts

Point!

- How to Organize Numbers (Review from Grade 1)

  When organizing, **mark each item** and color in the boxes from the bottom.



- When you show the counted numbers in a **graph**, you can instantly see which item has more or less. Draw the graph by drawing circles (◯) from the bottom, lining up the start of the rows.
- When you show the counted numbers in a **chart**, you can instantly see how many of each item there are.

Warm Up

Let's count the number of vehicles.



(1) Continue filling in the graph for the vehicles.

Number of Vehicle

◯				
◯	◯	◯	◯	
Car	Motorcycle	Train	Airplane	

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(2) Show the numbers from the graph in a chart.

Number of Vehicle

Vehicle	Car	Motorcycle	Train	Airplane	Boat
Number					

How to Solve

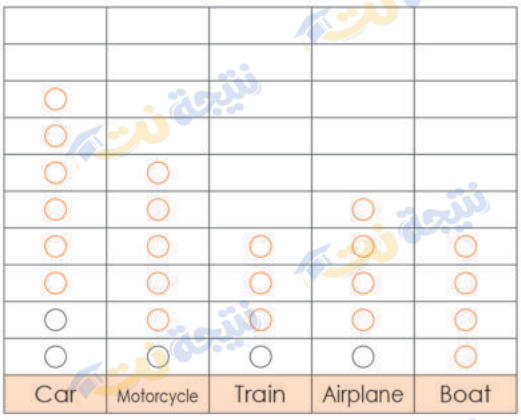
(1) ❶ First, write the missing item name, "Boat", to the right of "Airplane".

❷ Put a mark on one boat picture and draw one ○ on the graph above "Boat," starting from the bottom.

❸ Repeat putting a mark on each remaining picture and drawing a ○ from the bottom until all items are counted.

❹ Check that the total number of ○'s is 27 (the total number of pictures).

Number of Vehicle



(2) ❶ Count the number of ○'s for each vehicle in the graph, and write that number in the chart.

❷ Check that the total of the numbers in the chart is 27.

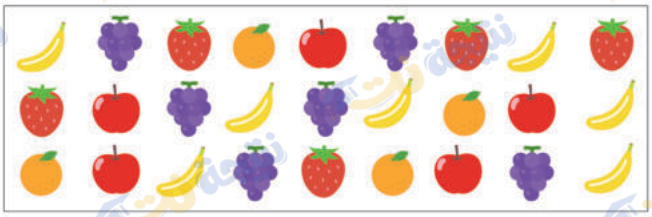
Vehicle Survey

Vehicle	Car	Motorcycle	Train	Airplane	Boat
Number	8	6	4	5	4

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Try

Let's discover the number of fruits.



(1) Write the missing item name, and show the number of fruits in a graph.

Number of Fruit

Banana	Strawberry	Orange	Grape	

(2) Let's move the numbers from the graph in a chart.

Fruit Survey

Fruit	Banana	Strawberry	Orange	Grape	Apple
Number					

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Exercise

(1) Let's discover the number of animals.



Number of Animal

Camel	Crocodile	Lion	Goat	

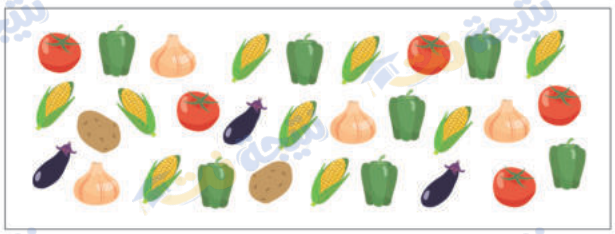
① Write the missing item name, and show the number of animals in a graph.

② Let's move the numbers from the graph in a chart.

Animal Survey

Animal	Camel	Crocodile	Lion	Goat	Giraffe
Number					

(2) Let's discover the number of vegetables.



Number of Vegetable

Tomato	Corn	Eggplant	Green Pepper	Potato	

① Write the missing item name, and show the number of vegetables in a graph.

② Let's move the numbers from the graph in a chart.

Vegetable Survey

Vegetable	Tomato	Corn	Eggplant	Green Pepper	Potato	Onion
Number						

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1-2 Let's Read Graphs and Charts

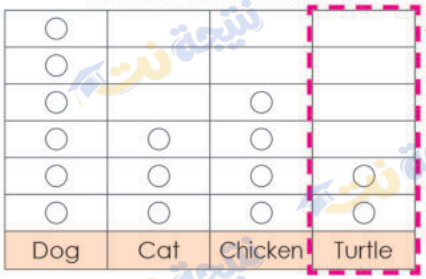
Point!

Advantages of Graphs and Charts

- When you show the counted numbers in a **graph**, you can instantly see which item has more or less just by looking.
- When you show the counted numbers in a **chart**, the exact number of each item becomes instantly clear.

Example We surveyed the number of animals and showed the results in a graph and a chart.

Number of Animal



Dog	Cat	Chicken	Turtle
○			
○			
○		○	
○	○	○	
○	○	○	○
○	○	○	○

- The animal with the fewest number is instantly clear by looking at the graph.

→ **Turtle**

- The total number of dogs and cats is instantly clear by looking at the chart.

→ 6 + 3 = **9 animals**

Number of Animal

Animal	Dog	Cat	Chicken	Turtle
Number	6	3	4	2

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Warm Up

The class surveyed their favorite colors and showed the results in a graph.

(1) Let's move the numbers from the graph in a chart.

Number of Favorite Color

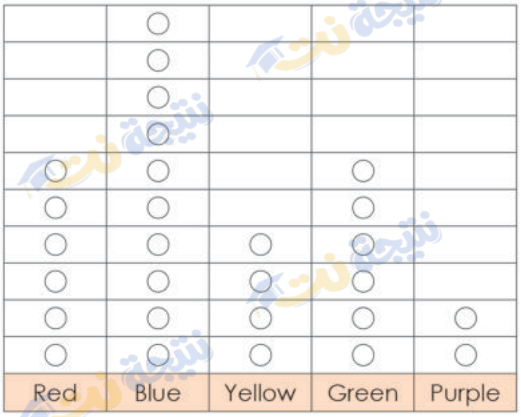
Color	Red	Blue	Yellow	Green	Purple
Number					

(2) Which color has the largest number of students who like it?

(3) Which color has the smallest number of students who like it?

(4) How many more students like green than yellow?

Favorite Color Survey



How to Solve

(1) Count the number of ○ for each color in the graph and write the number in the chart.

Number of Favorite Color

Color	Red	Blue	Yellow	Green	Purple
Number	6	10	4	6	2

(2) Look at the graph and find the color with the most ○.

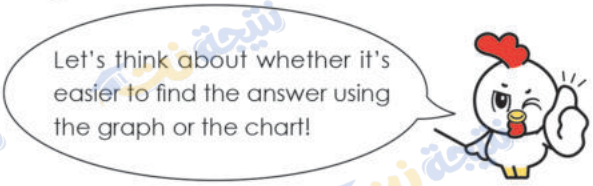
→ Blue

(3) Look at the graph and find the color with the fewest circles ○.

→ Purple

(4) Look at the chart and subtract the number of students who like yellow from the number of students who like green.

→ 6 − 4 = 2 2 students



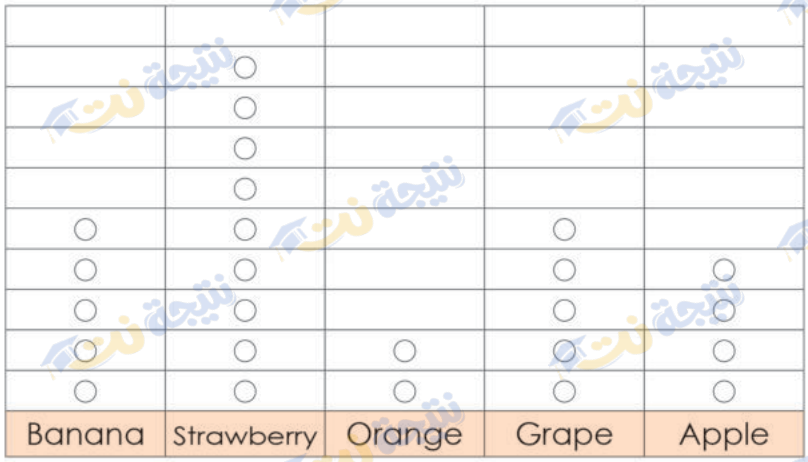
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Try

The class surveyed their favorite fruits and showed the results in a graph.

(1) Let's move the numbers from the graph in a chart.

Number of Fruit



Number of Fruit

Fruit	Banana	Strawberry	Orange	Grape	Apple
Number					

(2) Which fruit has the largest number of students who like it?

(3) Which fruit has the smallest number of students who like it?

(4) Which group has more students and by how many: those who like banana or those who like strawberry?

(5) Which fruits have the same number of students who like them?

(6) Which is easier to understand for showing more or less: the graph or the chart?

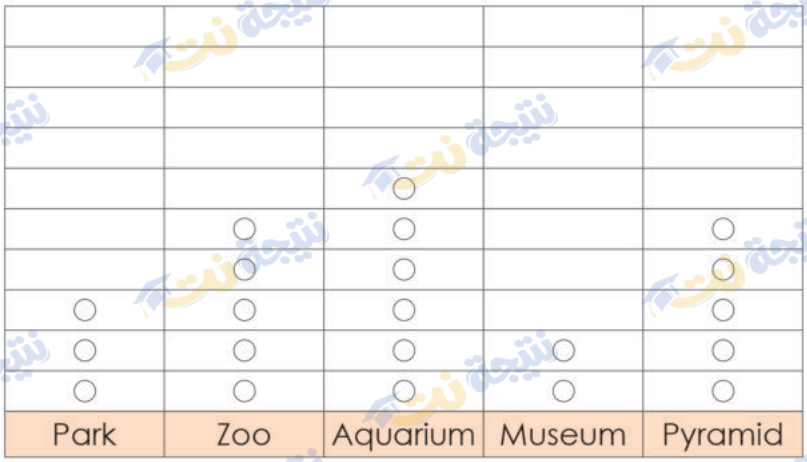
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Exercise

The class surveyed where they want to go for an excursion and showed the results in a graph.

(1) Let's move the numbers from the graph in a chart.

Number of Excursion Destination



Excursion Destination Survey

Vegetable	Park	Zoo	Aquarium	Museum	Pyramid
Number					

(2) Which place has the largest number of students who want to go there?

(3) Which place has the smallest number of students who want to go there?

(4) Which group has more students and by how many: those who want to go to the aquarium or those who want to go to the pyramid?

(5) Which places have the same number of students who want to go there?

(6) Which is easier to understand for showing the numbers: the graph or the chart?

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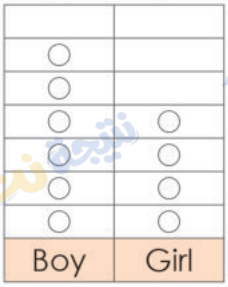
1-3 Let's Compare Graphs

Point!

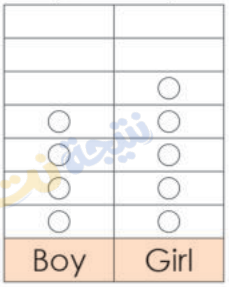
By comparing two graphs, you can study the differences.

Example We surveyed the number of boys and girls in Class 1 and Class 2.

Number of Boys and Girls (Class 1)



Number of Boys and Girls (Class 2)



- The number of boys is **2 students** greater in **Class 1**.
- The number of girls is **1 student** greater in **Class 2**.



Warm Up

Classes 1 and 2 surveyed their favorite fruits and showed the results in a graph.

Favorite Fruit Survey (Class 1)

Strawberry	Orange	Apple	Grape	Banana
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	
○	○	○	○	
○	○	○		
○	○	○		
○	○			

Favorite Fruit Survey (Class 2)

Strawberry	Orange	Apple	Grape	Banana
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	

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(1) Which fruit has the largest number of students who like it in Class 1?

(2) Which fruit has the largest number of students who like it in Class 2?

(3) Which fruit has the same number of students who like it in both Class 1 and Class 2?

(4) Which fruit has the largest difference in the number of students who like it between Class 1 and Class 2?

How to Solve

(1) Look at the Class 1 graph and find the fruit with the most ○.

→ Grape

(2) Look at the Class 2 graph and find the fruit with the most ○.

→ Banana

(3) Look at both graphs and find the fruit where the number of ○ is the same.

→ Apple

(4) Calculate the difference (using subtraction) in the number of students for each fruit between Class 1 and Class 2. Find the largest difference.

Strawberry: $7 - 5 = 2$ Orange: $7 - 6 = 1$

Apple: $8 - 8 = 0$ Grape: $9 - 5 = 4$

Banana: $10 - 5 = 5$

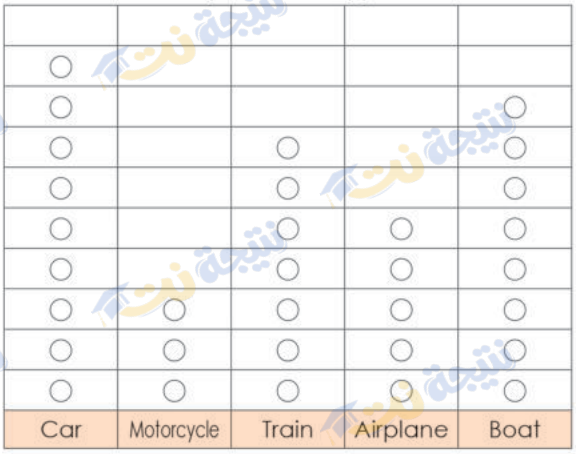
→ The difference is the largest for the Banana .

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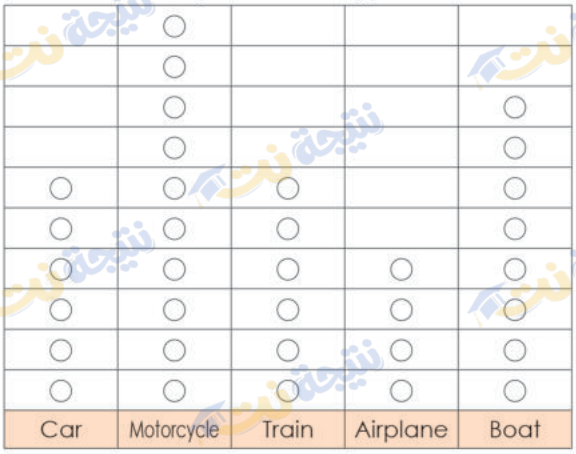
Try

The class surveyed the vehicles they want to ride twice and showed the results in a graph.

Number of Vehicle Preference (1st Survey)



Number of Vehicle Preference (2nd Survey)



(1) Which vehicle has the largest number of students who want to ride it in the 1st Survey?

(2) Which vehicle has the largest number of students who want to ride it in the 2nd Survey?

(3) Which vehicle has the same number of students who want to ride it in both the 1st and 2nd Surveys?

(4) Which vehicle has the largest total number of students who want to ride it across the 1st and 2nd Surveys?

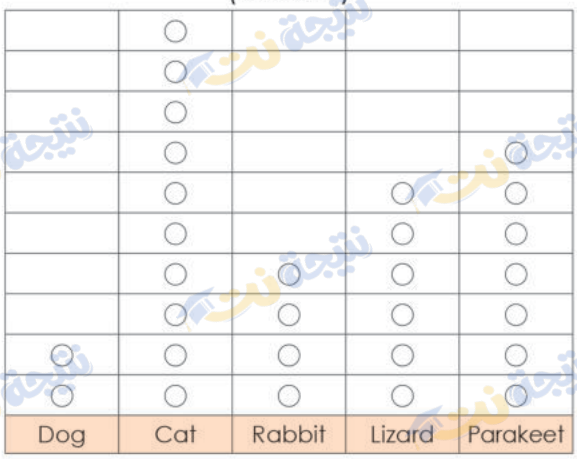
(5) Which vehicle has the largest difference in the number of students who want to ride it between the 1st and 2nd Surveys?

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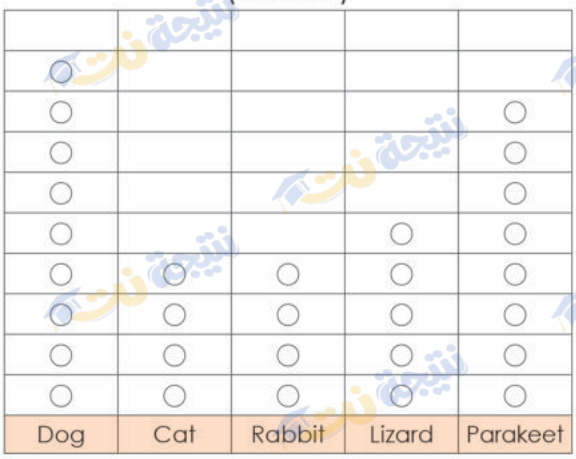
Exercise

Classes 1 and 2 surveyed the pets they want to own and showed the results in a graph.

Number of Desired Pet
(Class 1)



Number of Desired Pet
(Class 2)



(1) Which pet has the largest number of students who want to own it in Class 1?

(2) Which pet has the largest number of students who want to own it in Class 2?

(3) Which pet has the same number of students who want to own it in both Class 1 and Class 2?

(4) Which pet has the largest total number of students who want to own it across Class 1 and Class 2?

(5) Which pet has the largest difference in the number of students who want to own it between Class 1 and Class 2?

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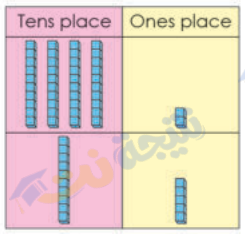
2-1 Vertical Addition (Part1)

Point!

- A calculation where you line up the place values vertically is called **Vertical method**.
- In vertical addition, you calculate place by place, starting from the **Ones place**, then the **Tens place**.

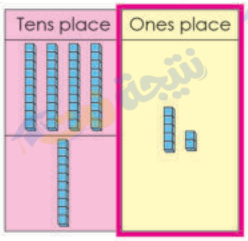
Example **42 + 15**

(How to Think) (How to Do Vertical Calculation)



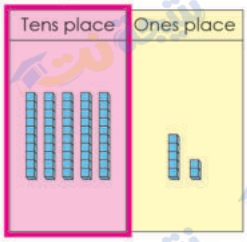
	Tens place	Ones place
	4	2
+	1	5

❶ Write the numbers, lining up the place values vertically.



	Tens place	Ones place
	4	2
+	1	5
		7

❷ Calculate the Ones place.
2 + 5 = 7



	Tens place	Ones place
	4	2
+	1	5
	5	7

❸ Calculate the Tens place.
4 + 1 = 5

42 + 15 = **57**

That's 7 Ones and 5 Tens!



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Warm Up

(1) Calculate using vertical method.

① 21 + 37 ② 46 + 50

(2) Hany has 40 sheets of colored paper. He received 20 more sheets of colored paper . How many sheets of colored paper does he have in total? Write the mathematical sentence and the answer.

How to Solve

(1) ①

	2	1
+	3	7
		8

Calculate the Ones place. 1 + 7 = 8

	2	1
+	3	7
	5	8

Calculate the Tens place. 2 + 3 = 5

②

	4	6
+	5	0
		6

Calculate the Ones place. 6 + 0 = 6

	4	6
+	5	0
	9	6

Calculate the Tens place. 4 + 5 = 9

(2) Problems that ask "how many in total" use addition.

mathematical sentence: 40 + 20 = 60

	4	0
+	2	0
	6	0

Answer: 60 sheets — Write your answer with the unit.

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Try

(1) Calculate the vertical method problems.

① $\begin{array}{r} 21 \\ +\ 16 \\ \hline \end{array}$

② $\begin{array}{r} 42 \\ +\ 37 \\ \hline \end{array}$

③ $\begin{array}{r} 40 \\ +\ 47 \\ \hline \end{array}$

④ $\begin{array}{r} 50 \\ +\ 30 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 34 + 11

② 14 + 42

③ 29 + 50

④ 66 + 33

(3) You have 43 candies. You received 26 more. How many candies do you have in total? Write the mathematical sentence and the answer.

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Exercise

(1) Calculate the vertical method problems.

① $\begin{array}{r} 36 \\ +\ 23 \\ \hline \end{array}$

② $\begin{array}{r} 16 \\ +\ 21 \\ \hline \end{array}$

③ $\begin{array}{r} 53 \\ +\ 33 \\ \hline \end{array}$

④ $\begin{array}{r} 41 \\ +\ 28 \\ \hline \end{array}$

⑤ $\begin{array}{r} 27 \\ +\ 20 \\ \hline \end{array}$

⑥ $\begin{array}{r} 80 \\ +\ 15 \\ \hline \end{array}$

⑦ $\begin{array}{r} 30 \\ +\ 40 \\ \hline \end{array}$

⑧ $\begin{array}{r} 49 \\ +\ 50 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 14 + 15

② 26 + 43

③ 73 + 14

④ 82 + 17

⑤ 38 + 50

⑥ 70 + 16

⑦ 55 + 40

⑧ 23 + 70

(3) Maryam has 50 sheets of stickers. Her sister has 45 sheets. How many sheets of stickers do they have in total? Write the mathematical sentence and the answer.

(4) Fady has 28 books. His older brother has 31 books. How many books do they have in total? Write the mathematical sentence and the answer.

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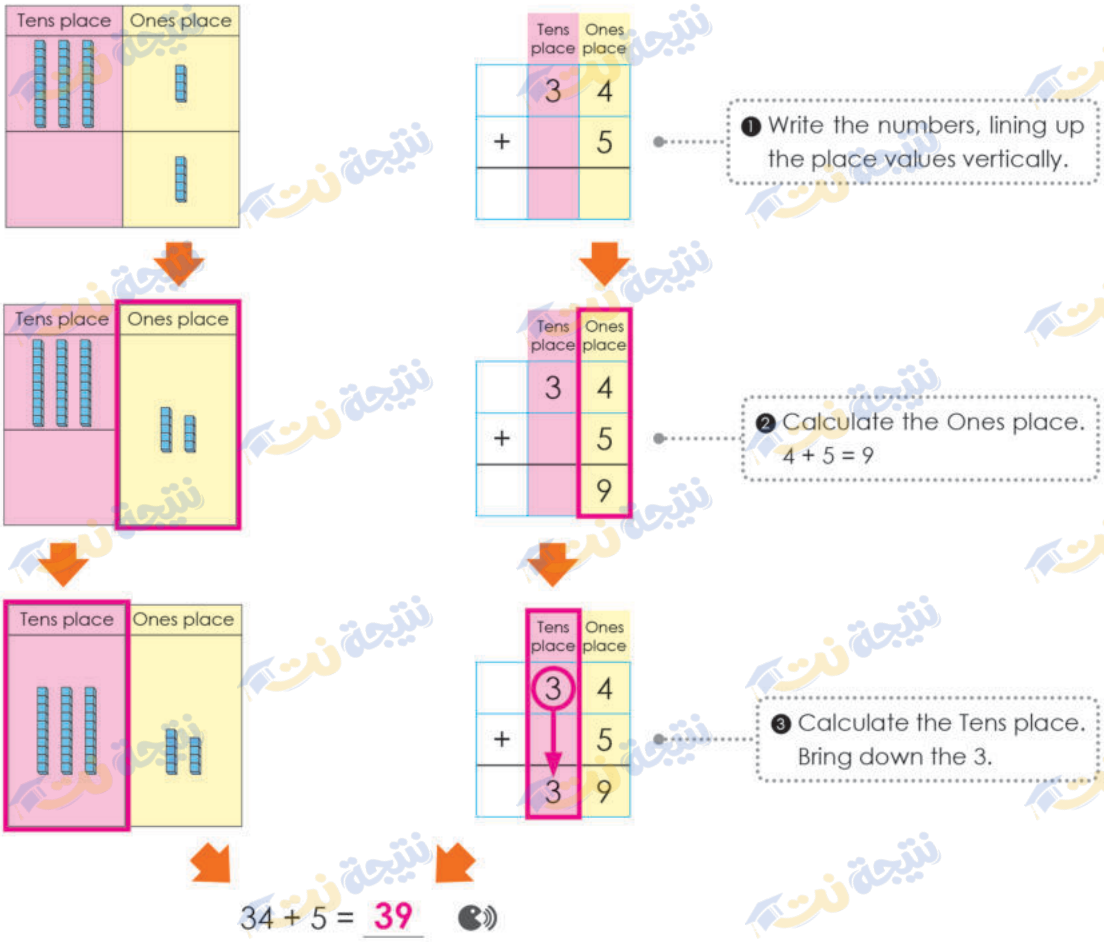
2-2 Vertical Addition (Part 2)

Point!

For vertical addition of a 2-digit number and a 1-digit number, write the 1-digit number under the **Ones place**.

Example **34 + 5**

(How to Think) (How to Do Vertical Calculation)



34 + 5 = **39**

Warm Up

Calculate using vertical method.

3 + 24

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How to Solve

Common Mistakes

✓

$$\begin{array}{r} \square\,\square\,3 \\ +\ 2\ 4 \\ \hline \square\,\square\,7 \end{array}$$

Calculate the Ones place.
3 + 4 = 7

$$\begin{array}{r} \square\,\square\,3 \\ +\ 2\ 4 \\ \hline \square\,2\ 7 \end{array}$$

Calculate the Tens place.
Bring down the 2.

✗

$$\begin{array}{r} \square\,3\,\square \\ 2\ 4 \\ \hline 5\ 4 \end{array}$$

The number 3 is being written and calculated in the Tens place.

Try

(1) Calculate the vertical method problems.

① $\begin{array}{r} 1\ 3 \\ +\ \ 5 \\ \hline \end{array}$ ② $\begin{array}{r} 3\ 1 \\ +\ \ 8 \\ \hline \end{array}$ ③ $\begin{array}{r} \ \ 6 \\ +\ 4\ 3 \\ \hline \end{array}$ ④ $\begin{array}{r} \ \ 8 \\ +\ 7\ 0 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 25 + 3 ② 30 + 6 ③ 7 + 51 ④ 6 + 83

(3) 24 children are playing. 5 children came and joined them. How many children are playing in total? Write the mathematical sentence and the answer.

Exercise

(1) Calculate the vertical method problems.

① $\begin{array}{r} 2\ 2 \\ +\ \ 2 \\ \hline \end{array}$ ② $\begin{array}{r} 4\ 5 \\ +\ \ 4 \\ \hline \end{array}$ ③ $\begin{array}{r} \ \ 4 \\ +\ 2\ 5 \\ \hline \end{array}$ ④ $\begin{array}{r} \ \ 9 \\ +\ 4\ 0 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 17 + 2 ② 32 + 4 ③ 66 + 3

④ 4 + 74 ⑤ 8 + 81 ⑥ 4 + 50

(3) You climbed 6 steps of the stairs. There are 30 steps remaining until the top. How many steps does the staircase have in total? Write the mathematical sentence and the answer.

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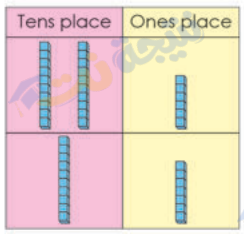
2-3 Vertical Addition (Part 3)

Point!

For vertical calculation, if the sum of the Ones place is 10 or more, **carry over 1** to the Tens place.

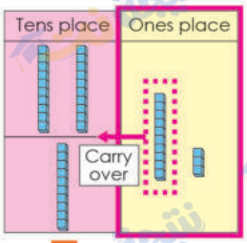
Example **26 + 17**

(How to Think) (How to Do Vertical Calculation)



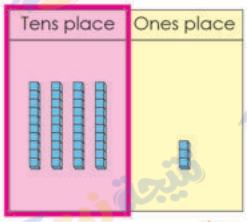
	2	6
+	1	7

❶ Write the numbers, lining up the place values vertically.



		2	6
+	1	7	
			3

❷ Calculate the Ones place.
6 + 7 = 13
Carry over 1 to the Tens place, and write 1 above the 2.



		2	6
+	1	7	
	4	3	

❸ Calculate the Tens place.
1 + 2 + 1 = 4

So, we add three numbers in the Tens place!

26 + 17 = **43**

Warm Up

Calculate using vertical method.

(1) 35 + 27

(2) 7 + 65



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How to Solve

(1)

	3	5
+	2	7
		2

Calculate the Ones place.
5 + 7 = 12
Carry over 1 to the Tens place.

	3	5
+	2	7
	6	2

Calculate the Tens place.
1 + 3 + 2 = 6

(2)

		7
+	6	5
		2

Calculate the Ones place.
7 + 5 = 12
Carry over 1 to the Tens place.

		7
+	6	5
	7	2

Calculate the Tens place.
1 + 6 = 7

Try

(1) Calculate the vertical method problems.

① 19 + 16 ② 6 + 57 ③ 38 + 4 ④ 46 + 9

(2) Calculate using vertical method.

① 27 + 14 ② 4 + 69 ③ 45 + 8 ④ 66 + 7

(3) The number of boys in the class is 29, and the number of girls is 23. What is the total number of students in the entire class? Write the mathematical sentence and the answer.

Exercise

(1) Calculate the vertical method problems.

① 45 + 27 ② 5 + 18 ③ 78 + 6 ④ 54 + 7

(2) Calculate using vertical method.

① 38 + 23 ② 7 + 25 ③ 89 + 6 ④ 78 + 8

(3) Fady has 17 pencils. His older sister has 26 pencils. How many pencils do they have in total? Write the mathematical sentence and the answer.

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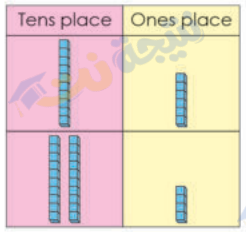
2-4 Vertical Addition (Part 4)

Point!

For vertical addition, if the sum of the Ones place is 10, write **0** in the Ones place and **carry over 1** to the Tens place.

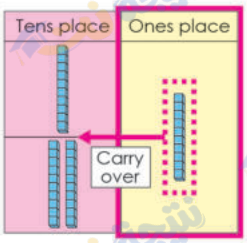
Example **16 + 24**

(How to Think) (How to Do Vertical Calculation)



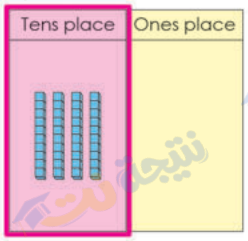
	1	6
+	2	4

❶ Write the numbers, lining up the place values vertically.



	1	6
+	2	4
		0

❷ Calculate the Ones place.
6 + 4 = 10
Write 0 in the Ones place and carry over 1 to the Tens place.



	1	6
+	2	4
	4	0

❸ Calculate the Tens place.
1 + 1 + 2 = 4

16 + 24 = **40**

Warm Up

Calculate using vertical method.

(1) 75 + 15

(2) 8 + 52

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How to Solve

(1)

	7	5
+	1	5
		0

Calculate the Ones place.
5 + 5 = 10
Write 0 in the Ones place and carry over 1 to the Tens place.

	7	5
+	1	5
	9	0

Calculate the Tens place.
1 + 7 + 1 = 9

(2)

		8
+	5	2
		0

Calculate the Ones place.
8 + 2 = 10
Write 0 in the Ones place and carry over 1 to the Tens place.

		8
+	5	2
	6	0

Calculate the Tens place.
1 + 5 = 6

Try

(1) Calculate the vertical method problems.

① 37 + 13 ② 6 + 24 ③ 58 + 2 ④ 66 + 4

(2) Calculate using vertical method.

① 35 + 15 ② 9 + 71 ③ 34 + 6 ④ 85 + 5

(3) Yara has 23 candies. Her sister has 27 candies. How many candies do they have in total? Write the mathematical sentence and the answer.

Exercise

(1) Calculate the vertical method problems.

① 28 + 42 ② 29 + 11 ③ 3 + 17 ④ 41 + 9

(2) Calculate using vertical method.

① 23 + 17 ② 58 + 22 ③ 7 + 23 ④ 81 + 9

(3) The number of boys is 51, and the number of girls is 9. How many people are there in total? Write the mathematical sentence and the answer.

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2-5 Vertical Addition (Part 5)

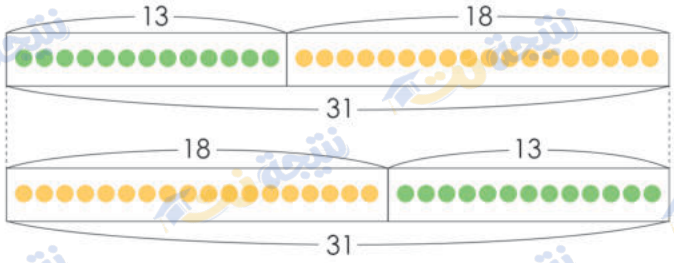
Point!

In addition, even if you exchange the order of the two numbers, the Answer will be **the same**.
You can use this property to **check** your Answer.

Example

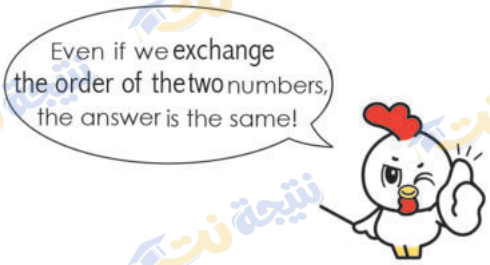
13 + 18

18 + 13



<Check the Answer>

$$\begin{array}{r} 13 \\ +\ 18 \\ \hline 31 \end{array} \qquad \begin{array}{r} 18 \\ +\ 13 \\ \hline 31 \end{array}$$



Warm Up

(1) Match the mathematical sentence that have the same answer without calculating.

38 + 12	54 + 9	20 + 61	47 + 17	
9 + 54	61 + 20	12 + 38	12 + 9	17 + 47

(2) The answer to 24 + 36 and the addition problems (Ⓐ - Ⓓ) below are all 60.
Which one has the same answer as 24 + 36 without calculating?

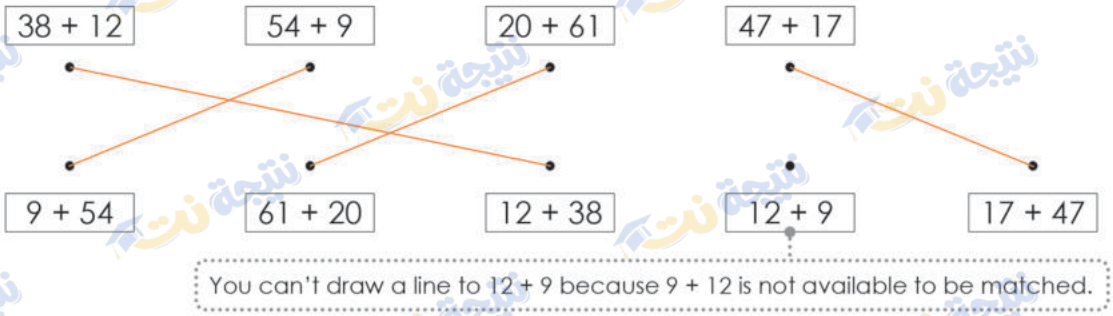
Ⓐ 29 + 31	Ⓑ 44 + 16	Ⓒ 36 + 24	Ⓓ 19 + 41

(3) Karim has 16 strawberries, and his mother has 17 strawberries. How many strawberries do they have in total? Write two ways to write the mathematical sentence and the answer.

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How to Solve

(1) Let's match the mathematical sentences where the addends are swapped.



(2) Find the mathematical sentence where 24 and 36 are swapped. ⟶ ©

(3) Karim + Mother

mathematical sentence: 16 + 17 = 33 Answer: 33 strawberries

Mother + Karim

mathematical sentence: 17 + 16 = 33 Answer: 33 strawberries

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Try

(1) Match the mathematical sentence that have the same answer without calculating.

7 + 19	38 + 3	42 + 48	52 + 29
•	•	•	•
•	•	•	•	•
29 + 52	3 + 38	19 + 3	48 + 42	19 + 7

(2) The answer to 42 + 8 and the addition problems (Ⓐ - Ⓓ) below are all 50. Which one has the same answer as 42 + 8 without calculating?

Ⓐ 30 + 20	Ⓑ 8 + 42	Ⓒ 41 + 9	Ⓓ 32 + 18

(3) There are 37 red flowers and 49 white flowers blooming. How many flowers are blooming in total? Write two ways to write the mathematical sentence and the answer.

(4) There are 63 boys and 29 girls . How many number of boys and girls are there in total? Write two ways to write the mathematical sentence and the answer.

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Exercise

(1) Match the mathematical sentence that have the same answer without calculating.

40 + 10	27 + 5	19 + 21	80 + 16	
•	•	•	•	
				•
•	•	•	•	
10 + 19	16 + 80	10 + 40	21 + 19	5 + 27

(2) The answer to 56 + 17 and the addition problems (Ⓐ - Ⓓ) below are all 73. Which one has the same answer as 56 + 17 without calculating?

Ⓐ 17 + 56	Ⓑ 50 + 23	Ⓒ 55 + 18	Ⓓ 16 + 57

(3) There are 28 photo books and 64 non-photo books. How many books are there in total? Write two ways to write the mathematical sentence and the answer.

(4) There are 45 red fish and 39 blue fish. How many fish are there in total? Write two ways to write the mathematical sentence and the answer.

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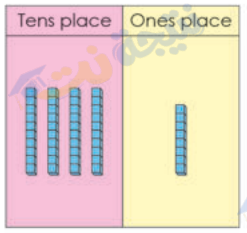
3-1 Vertical Subtraction (Part 1)

Point!

Just like vertical addition, do vertical subtraction place by place, starting from the **Ones place**, then the **Tens place**.

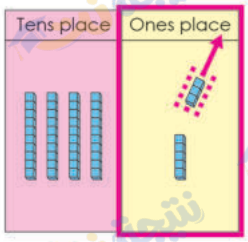
Example **48 − 13**

(How to Think) (How to Do Vertical Calculation)



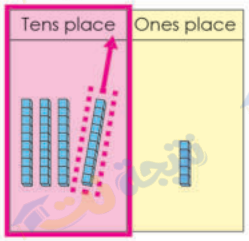
	Tens place	Ones place
	4	8
−	1	3

❶ Write the numbers, lining up the place values vertically.



	Tens place	Ones place
	4	8
−	1	3
		5

❷ Calculate the Ones place.
8 − 3 = 5



	Tens place	Ones place
	4	8
−	1	3
	3	5

❸ Calculate the Tens place.
4 − 1 = 3

48 − 13 = **35**

That's 5 Ones and 3 Tens!



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Warm Up

(1) Calculate using vertical method.

① 36 − 24 ② 89 − 65

(2) Maryam has 39 sheets of colored paper. Her sister has 25 sheets. How many more sheets of colored paper does Maryam have than her sister? Write the mathematical sentence and the answer.

How to Solve

(1) ①

	3	6
−	2	4
		2

Calculate the Ones place. 6 − 4 = 2

	3	6
−	2	4
	1	2

Calculate the Tens place. 3 − 2 = 1

②

	8	9
−	6	5
		4

Calculate the Ones place. 9 − 5 = 4

	8	9
−	6	5
	2	4

Calculate the Tens place. 8 − 6 = 2

(2) Problems that ask for how more? the difference and what is left use subtraction.

mathematical sentence: 39 − 25 = 14

	3	9
−	2	5
	1	4

Answer: 14 sheets — Write your answer with the unit.

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Try

(1) Calculate the vertical method problems.

① $\begin{array}{r} 25 \\ -\ 13 \\ \hline \end{array}$

② $\begin{array}{r} 36 \\ -\ 14 \\ \hline \end{array}$

③ $\begin{array}{r} 55 \\ -\ 22 \\ \hline \end{array}$

④ $\begin{array}{r} 48 \\ -\ 36 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 28 − 14

② 36 − 12

③ 49 − 27

④ 57 − 33

(3) You have 47 candies. You gave 12 candies to your friend. How many candies do you have left? Write the mathematical sentence and the answer.

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Exercise

(1) Calculate the vertical method problems.

① $\begin{array}{r} 35 \\ -\ 21 \\ \hline \end{array}$

② $\begin{array}{r} 28 \\ -\ 16 \\ \hline \end{array}$

③ $\begin{array}{r} 58 \\ -\ 36 \\ \hline \end{array}$

④ $\begin{array}{r} 67 \\ -\ 25 \\ \hline \end{array}$

⑤ $\begin{array}{r} 76 \\ -\ 51 \\ \hline \end{array}$

⑥ $\begin{array}{r} 74 \\ -\ 62 \\ \hline \end{array}$

⑦ $\begin{array}{r} 88 \\ -\ 66 \\ \hline \end{array}$

⑧ $\begin{array}{r} 97 \\ -\ 73 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 27 − 12

② 38 − 23

③ 59 − 18

④ 68 − 44

⑤ 76 − 54

⑥ 86 − 65

⑦ 97 − 22

⑧ 98 − 76

(3) Your older brother has 57 seashells. Your younger brother has 14 seashells. How many more seashells does your older brother have than your younger brother? Write the mathematical sentence and the answer.

(4) You are reading a book that has 95 pages. You have read 33 pages. How many pages are left? Write the mathematical sentence and the answer.

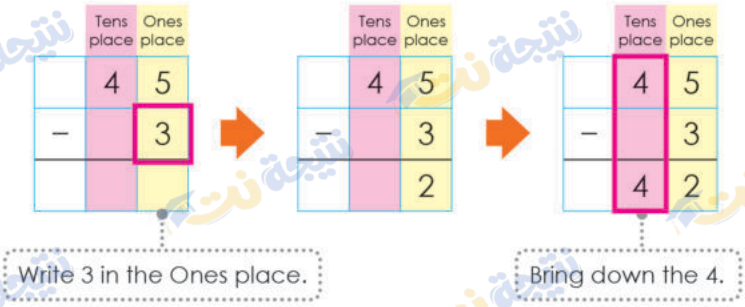
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3-2 Vertical Subtraction (Part 2)

Point!

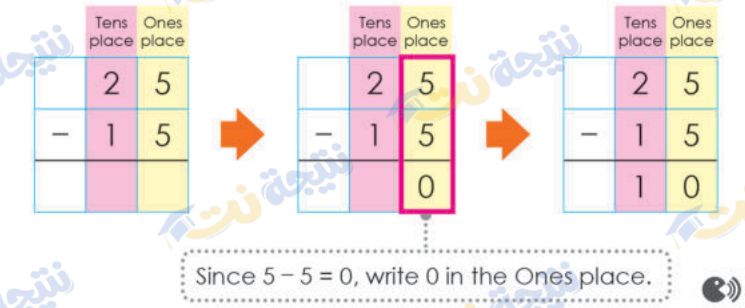
- For vertical subtraction of a 2-digit number and a 1-digit number, write the 1-digit number under the **Ones place**.

Example **45 − 3**



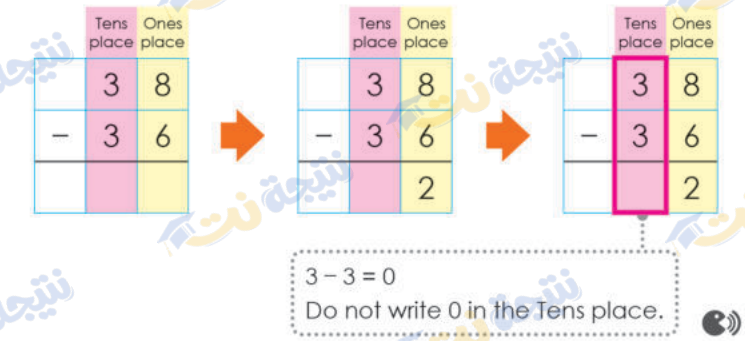
- If the answer for the Ones place calculation is 0, write **0** in the Ones place.

Example **25 − 15**



- If the answer for the Tens place calculation is 0, **do not write anything** in the Tens place.

Example **38 − 36**



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Warm Up

(1) Calculate using vertical method.

① 27 − 4 ② 79 − 76

(2) There are 48 sheets of colored paper. 18 sheets were used. How many sheets of colored paper are left? Write the mathematical sentence and the answer.

How to Solve

(1) ①

	2	7
−		4
		3

→

	2	7
−		4
	2	3

❶ Calculate the Ones place.
Since 7 − 7 = 0, write 0 in the Ones place.
❷ Calculate the Tens place.
Bring down the 2.

②

	7	9
−	7	6
		3

→

	7	9
−	7	6
		3

❶ Calculate the Ones place.
Since 9 − 6 = 3, write 3 in the Ones place.
❷ Calculate the Tens place.
7 − 7 = 0
Do not write 0 in the Tens place.

(2) Problems that ask for the remaining amount use subtraction.

mathematical sentence: 48 − 18 = 30

	4	8
−	1	8
	3	0

Answer: 30 sheets — Write your answer with the unit.

Do not forget to write the numbers, lining up the place values vertically.



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Try

(1) Calculate the vertical method problems.

① $\begin{array}{r} 27 \\ -\ 3 \\ \hline \end{array}$

② $\begin{array}{r} 35 \\ -\ 5 \\ \hline \end{array}$

③ $\begin{array}{r} 47 \\ -\ 27 \\ \hline \end{array}$

④ $\begin{array}{r} 74 \\ -\ 71 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 38 − 3

② 76 − 6

③ 54 − 24

④ 59 − 57

(3) A book has 87 pages. You have read 27 pages. How many pages are left unread? Write the mathematical sentence and the answer.

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Exercise

(1) Calculate the vertical method problems.

① $\begin{array}{r} 37 \\ -\ 4 \\ \hline \end{array}$ ② $\begin{array}{r} 56 \\ -\ 5 \\ \hline \end{array}$ ③ $\begin{array}{r} 44 \\ -\ 4 \\ \hline \end{array}$ ④ $\begin{array}{r} 69 \\ -\ 9 \\ \hline \end{array}$

⑤ $\begin{array}{r} 87 \\ -\ 27 \\ \hline \end{array}$ ⑥ $\begin{array}{r} 66 \\ -\ 26 \\ \hline \end{array}$ ⑦ $\begin{array}{r} 85 \\ -\ 82 \\ \hline \end{array}$ ⑧ $\begin{array}{r} 77 \\ -\ 73 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 39 − 6 ② 45 − 4 ③ 67 − 7 ④ 73 − 3

⑤ 68 − 38 ⑥ 81 − 21 ⑦ 68 − 65 ⑧ 99 − 94

(3) There are 38 people on the bus. 18 people got off the bus. How many people are on the bus now? Write the mathematical sentence and the answer.

(4) Hassan has 27 candies. His sister has 22 candies. How many more candies does Hassan have than his sister? Write the mathematical sentence and the answer.

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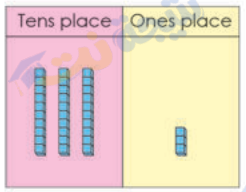
3-3 Vertical Subtraction (Part 3)

Point!

In subtraction like 46 − 28, when you cannot subtract in the Ones place, **take 1** (which means 10) from the Tens place and then calculate.

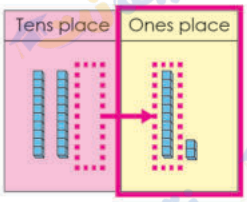
Example **32 − 15**

(How to Think) (How to Do Vertical Calculation)



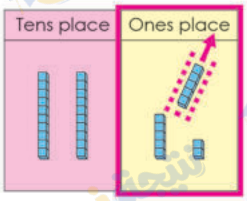
	3	2
−	1	5

❶ Write the numbers, lining up the place values vertically.



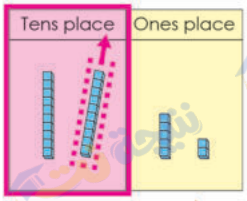
	2	12
	3	2
−	1	5

❷ Calculate the Ones place. Since you cannot subtract 5 from 2, take 1 from the Tens place.



	2	12
	3	2
−	1	5
		7

❸ 12 − 5 = 7



	2	12
	3	2
−	1	5
	1	7

❹ Calculate the Tens place. 2 − 1 = 1

32 − 15 = **17**

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Warm Up

(1) Calculate using vertical method.

① 45 − 28 ② 30 − 17

(2) There are 33 people on the bus. 15 people got off. How many people are left on the bus? Write the mathematical sentence and the answer.

How to Solve

(1) ①

	3	15
	4	5
−	2	8
		7

Calculate the Ones place. Since you cannot subtract 8 from 5, take 1 from the Tens place. 15 − 8 = 7

	3	15
	4	5
−	2	8
	1	7

Calculate the Tens place. 3 − 2 = 1

②

	2	10
	3	0
−	1	7
		3

Calculate the Ones place. Since you cannot subtract 7 from 0, take 1 from the Tens place. 10 − 7 = 3

	2	10
	3	0
−	1	7
	1	3

Calculate the Tens place. 2 − 1 = 1

(2) mathematical sentence: 33 − 15 = 18

	2	13
	3	3
−	1	5
	1	8

Answer: 18 people

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Try

(1) Calculate the vertical method problems.

① $\begin{array}{r} 35 \\ -\ 16 \\ \hline \end{array}$

② $\begin{array}{r} 51 \\ -\ 25 \\ \hline \end{array}$

③ $\begin{array}{r} 90 \\ -\ 49 \\ \hline \end{array}$

④ $\begin{array}{r} 80 \\ -\ 38 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 42 − 23

② 34 − 19

③ 90 − 16

④ 70 − 34

(3) 37 children are playing. 18 children went home. How many children are left?
Write the mathematical sentence and the answer.

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Exercise

(1) Calculate the vertical method problems.

① $\begin{array}{r} 45 \\ -\ 27 \\ \hline \end{array}$ ② $\begin{array}{r} 38 \\ -\ 19 \\ \hline \end{array}$ ③ $\begin{array}{r} 52 \\ -\ 36 \\ \hline \end{array}$

④ $\begin{array}{r} 70 \\ -\ 21 \\ \hline \end{array}$ ⑤ $\begin{array}{r} 50 \\ -\ 34 \\ \hline \end{array}$ ⑥ $\begin{array}{r} 80 \\ -\ 53 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 32 − 18 ② 45 − 29 ③ 43 − 17

④ 40 − 25 ⑤ 60 − 36 ⑥ 80 − 52

(3) There are 43 birds. 18 birds flew away. How many birds are left? Write the mathematical sentence and the answer.

(4) There are 60 sheets of red paper and 46 sheets of blue paper. Which color of paper has more sheets, and by how many? Write the mathematical sentence and the answer.

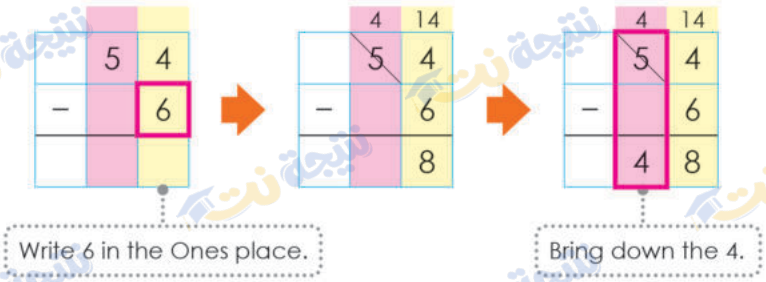
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3-4 Vertical Subtraction (Part 4)

Point!

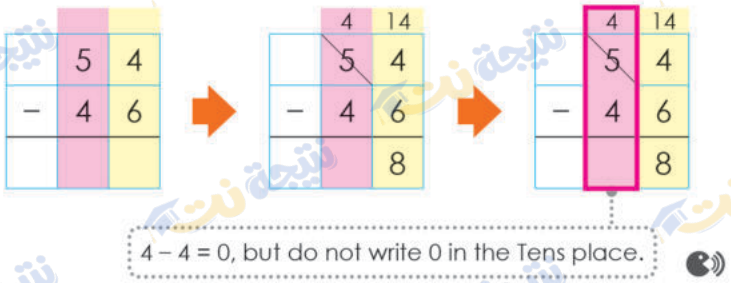
For vertical subtraction of a 2-digit number and a 1-digit number, write the 1-digit number under the **Ones place**.

Example **54 − 6**



If the answer for the Tens place calculation is 0, **do not write anything** in the Tens place.

Example **54 − 46**



Warm Up

Calculate using vertical method.

(1) 30 − 8 (2) 35 − 27

How to Solve

(1)

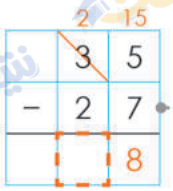


❶ Calculate the Ones place. Since you cannot subtract 8 from 0, take 1 from the Tens place.
❷ 10 − 8 = 2
❸ Calculate the Tens place. Bring down the 2.

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(2)

	2	15
	3	5
−	2	7
		8



	2	15
	3	5
−	2	7
		8

❶ Calculate the Ones place. Since you cannot subtract 7 from 5, take 1 from the Tens place.
❷ 15 − 7 = 8
❸ Calculate the Tens place.
2 − 2 = 0
Do not write 0 in the Tens place.

Try

(1) Calculate the vertical method problems.

① $\begin{array}{r} 43 \\ -\ 9 \\ \hline \end{array}$ ② $\begin{array}{r} 70 \\ -\ 5 \\ \hline \end{array}$ ③ $\begin{array}{r} 72 \\ -\ 67 \\ \hline \end{array}$ ④ $\begin{array}{r} 90 \\ -\ 86 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 21 − 3 ② 50 − 7 ③ 64 − 56 ④ 77 − 68

(3) There are 30 yellow fish and 18 blue fish in the aquarium. Which color of fish has more, and by how many? Write the mathematical sentence and the answer.

Exercise

(1) Calculate the vertical method problems.

① $\begin{array}{r} 35 \\ -\ 6 \\ \hline \end{array}$ ② $\begin{array}{r} 40 \\ -\ 4 \\ \hline \end{array}$ ③ $\begin{array}{r} 84 \\ -\ 79 \\ \hline \end{array}$ ④ $\begin{array}{r} 30 \\ -\ 22 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 32 − 9 ② 40 − 3 ③ 55 − 47 ④ 90 − 82

(3) A book has 80 pages. You have read 8 pages. How many pages are left? Write the mathematical sentence and the answer.

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3-5 The relation between the subtraction and the addition

Point!

If you add the **Difference** and the **Subtrahend**, you get the **Minuend**.

You can use this to check the Answer of the subtraction problem using **addition**.

Example

Minuend		Subtrahend		Difference
54	−	26	=	28
28	+	26	=	54

$$\begin{array}{r} 54 \\ -\ 26 \\ \hline 28 \end{array} \qquad \begin{array}{r} 28 \\ +\ 26 \\ \hline 54 \end{array}$$



Warm Up

(1) Match the addition mathematical sentence and the substracion that checks the difference + the subtrahend.

74 − 28	38 − 5	45 − 15	80 − 9	
•	•	•	•	
•	•	•	•	•
30 + 15	71 + 9	46 + 28	30 + 45	33 + 5

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(2) 41 people are on the bus. Some people got off, and now 13 people are left on the bus.

① Write the number that goes into the ☐ in the diagram below.

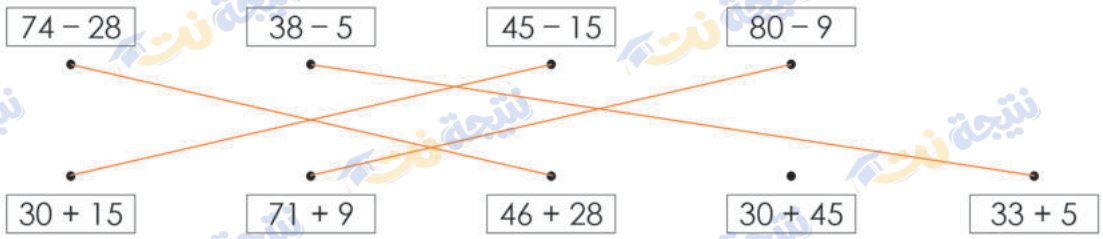


② How many people got off the bus? Write the mathematical sentence and the answer.

③ Check the answer using addition.

How to Solve

(1) You should match the mathematical sentences of the subtracion and the addition that shows the Difference plus the Subtrahend.



(2) ①



② mathematical sentence: 41 − 13 = 28

Answer: 28 people

	3	11
	4	1
−	1	3
	2	8

③ 28 + 13 = 41

The calculation is correct because the Difference plus the Subtrahend equals the Minuend.

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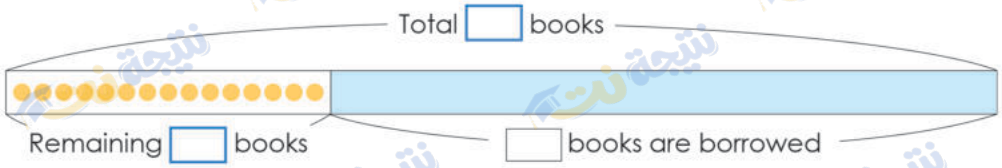
Try

(1) Match the addition mathematical sentence and the substracion that checks of the difference + the subtrahend.

56 − 39	21 − 8	34 − 24	60 − 3
•	•	•	•
•	•	•	•	•
29 + 8	17 + 39	57 + 3	10 + 24	13 + 8

(2) There are 43 books in the class. Some were borrowed, and now 15 books are left. Write the mathematical sentence and the answer.

① Write the number that goes into the ☐ in the diagram below.



② How many books were borrowed? Write the mathematical sentence and the answer.

③ Check the answer using addition.

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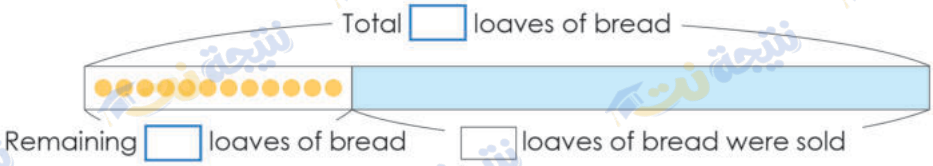
Exercise

(1) Match the addition mathematical sentence and the substracion that checks of the difference + the subtrahend.

40 − 7	55 − 15	71 − 68	65 − 9	
•	•	•	•	
•	•	•	•	•
33 + 7	3 + 68	56 + 9	47 + 7	40 + 15

(2) A shop sold 30 loaves of bread. Some were sold, and now 12 loaves are left. Write the mathematical sentence and the answer.

① Write the number that goes into the ☐ in the diagram below.



② How many loaves of bread were sold? Write the mathematical sentence and the answer.

③ Check the answer using addition.

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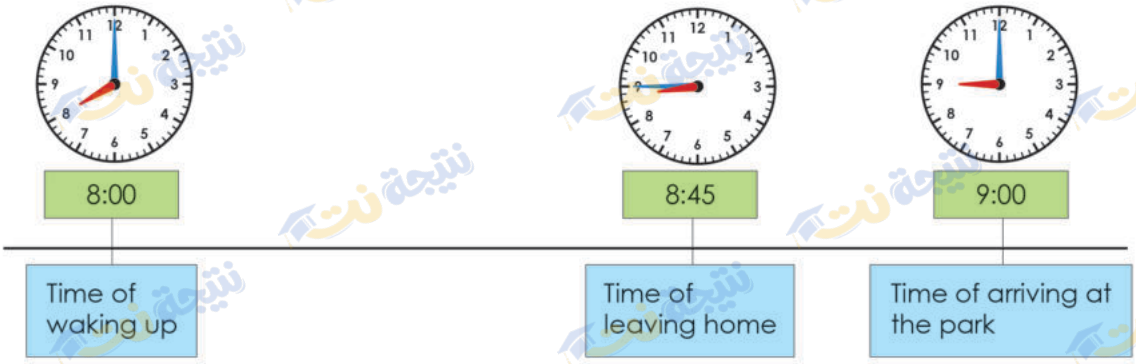
4-1 Time and Duration (Part 1)

Point!

- The interval between one Time and another Time is called **Duration**.
- The time the long hand moves by one scale unit is **1 minute**.
  The time it takes for the long hand to complete one rotation is **1 hour**.
- 1 hour = **60 minutes**

Warm Up

(1) Look at the diagram below and answer the questions.



① How many minutes did it take from waking up until leaving home?

② How many minutes did it take from waking up until arriving at the park?

(2) Look at the clock below and write the Time.

① The Time 30 minutes later.

② The Time 15 minutes before.



(3) Write the missing number in the box.

① 1 hour 20 minutes = ☐ minutes

② 90 minutes = ☐ hours ☐ minutes

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How to Solve

(1) ① The Duration from 8:00 to 8:45. 45 minutes

② The Duration from 8:00 to 9:00. 1 hour

(2) ① 30 minutes after 5:00. 5:30

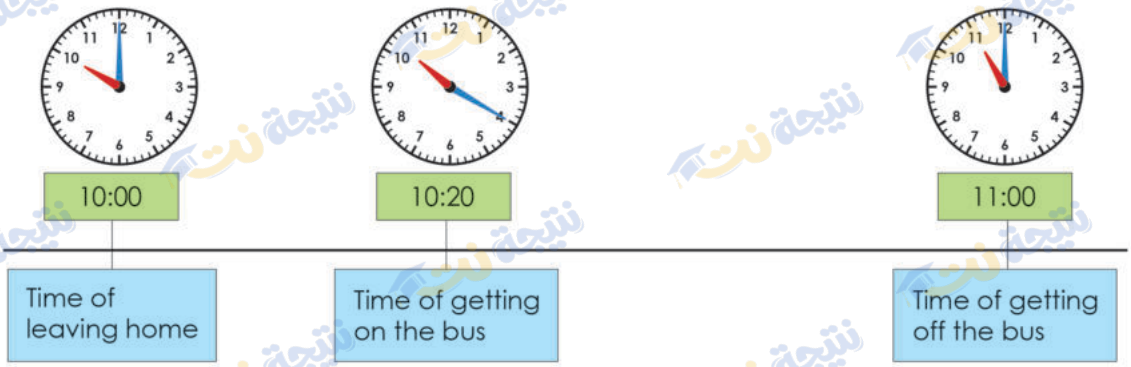
② 15 minutes before 5:00. 4:45

(3) ① 1 hour 20 minutes = 80 minutes ····· 60 + 20 = 80

② 90 minutes = 1 hours 30 minutes ····· 90 = 60 + 30

Try

(1) Look at the diagram below and answer the questions.



① How many minutes did it take from leaving home until getting on the bus?

② How many minutes did it take from leaving home until getting off the bus?

(2) Look at the clock below and write the Time or Duration.



① The Time 20 minutes later.

② The Time 30 minutes before.

③ The Duration until 3:25.

④ The Duration until 4:00.

(3) Write the missing number in the box.

① 1 hour 35 minutes = ☐ minutes

② 75 minutes = ☐ hours ☐ minutes

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Exercise

(1) Look at the diagram below and answer the questions.



① How many minutes did it take from waking up until leaving home?

② How many minutes did it take from leaving home until arriving at the library?

(2) Look at the clock below and write the Time or Duration.

① The Time 40 minutes later.



② The Time 10 minutes before.

③ The Duration until 11:55.

④ The Duration until 12:00.



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(3) Look at the clock below and write the Time or Duration.



① The Time 35 minutes later.

② The Time 15 minutes before.

③ The Duration until 9:40.

④ The Duration until 10:00.

(4) Write the missing number in the box.

① 1 hour = ☐ minutes

② 1 hour 10 minutes = ☐ minutes

③ 1 hour 45 minutes = ☐ minutes

④ 65 minutes = ☐ hours ☐ minutes

⑤ 100 minutes = ☐ hours ☐ minutes



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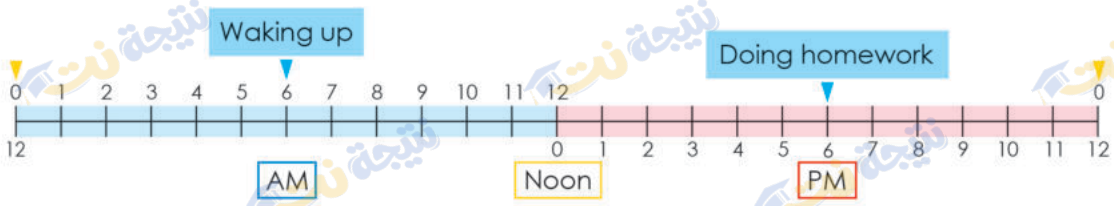
4-2 Time and Duration (Part 2)

Point!

- The time before 12 o'clock noon is called **AM**.
  The time after 12 o'clock noon is called **PM**.
  Also, 12 o'clock noon is sometimes called **Noon**.
- In one day, both AM and PM last **12 hours** each.
- 1 day = **24 hours**

Warm Up

(1) Look at the diagram below and answer the questions.



① Write the Time of waking up using **AM** or **PM**.

② Write the Time of doing homework using **AM** or **PM**.

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(2) Answer the following questions.

① Write the following times using **AM** or **PM**.

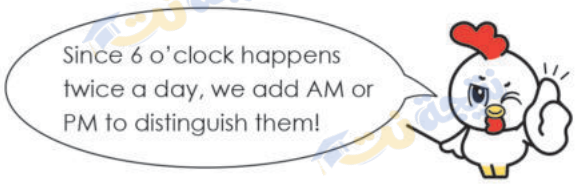
Morning	Afternoon	Evening
Leaving home	Eating lunch	Going home
		

② How many hours is the Duration from eating lunch until going home?

How to Solve

(1) ① AM 6:00

② PM 6:00



(2) ① Morning) AM 9:30

Afternoon) PM 1:00

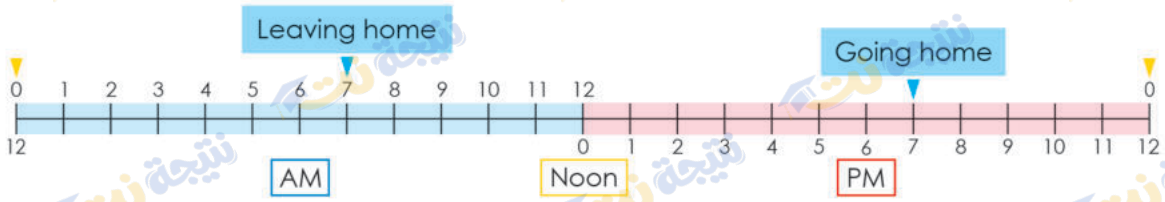
Evening) PM 6:00

② The Duration from PM 1:00 to PM 6:00 is 5 hours .

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Try

(1) Look at the diagram below and answer the questions.



① Write the Time of leaving home using **AM** or **PM**.

② Write the Time of going home using **AM** or **PM**.

(2) Answer the following questions.

① Write the following times using **AM** or **PM**.

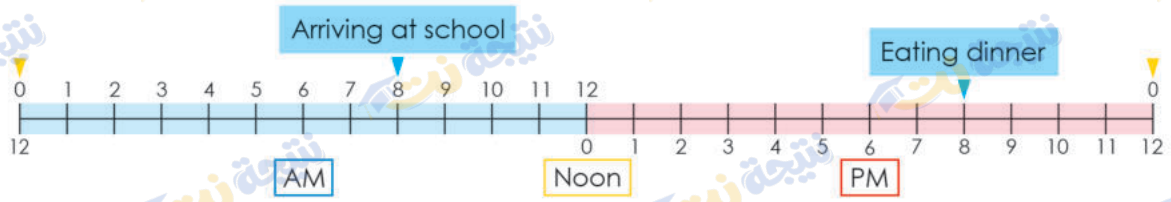
Morning	Afternoon	Evening
Waking up	Leaving school	Going to bed
		

② How many hours is the Duration from leaving school until going to bed?

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Exercise

(1) Look at the diagram below and answer the questions.



① Write the Time of arriving at school using **AM** or **PM**.

② Write the Time of eating dinner using **AM** or **PM**.

③ How many hours is the Duration from arriving at school until eating dinner?

(2) Write **AM** or **PM** in the box .

① Dina wakes up at ☐ 6:00.

② Ahamed eats dinner at ☐ 7:30.

(3) Answer the following questions.

① What Time is 1 hour before Noon? Write the answer using **AM** or **PM**.

② How many hours is AM?

③ How many times does the short hand go around the clock face in 1 day?

④ How many hours is 1 day?

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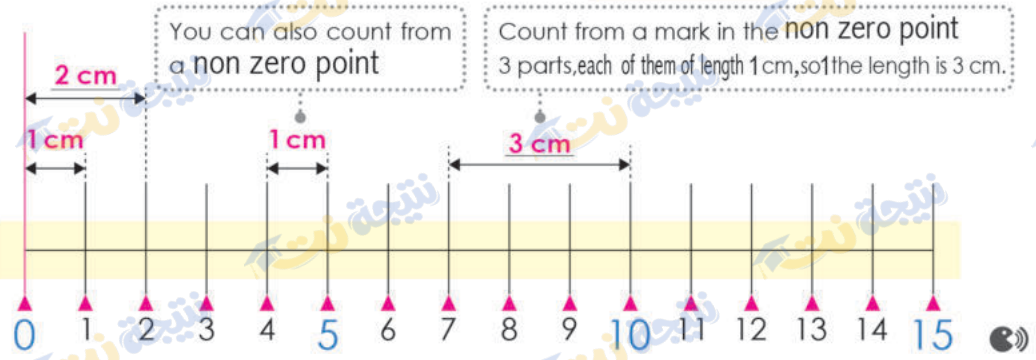
5-1 Units of Length (Part 1)

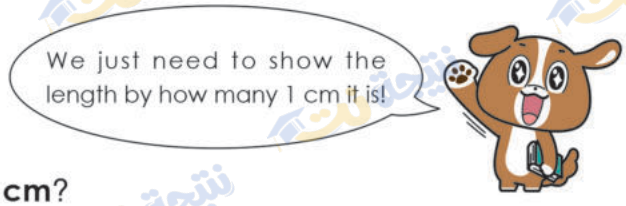
Point!

Length is represented by how many **1 centimeters** it is.

Centimeter is a unit of length, and it is written as **cm**.

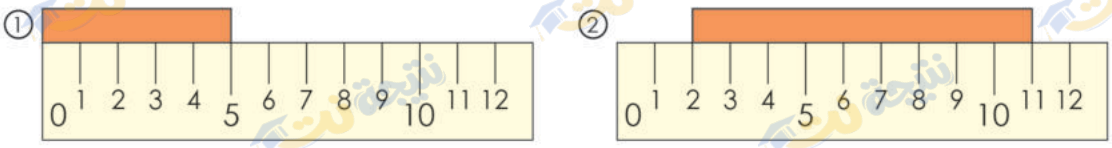
1 cm 1cm 1cm





Warm Up

(1) What is the length of the tape in **cm**?



(2) Which line is the longest? Measure with a ruler, and answer with Ⓐ, Ⓑ, or Ⓒ.



How to Solve

(1) ① 5 cm ② 9 cm

Counting from a mark in the middle, the length is 9 parts of 1 cm.

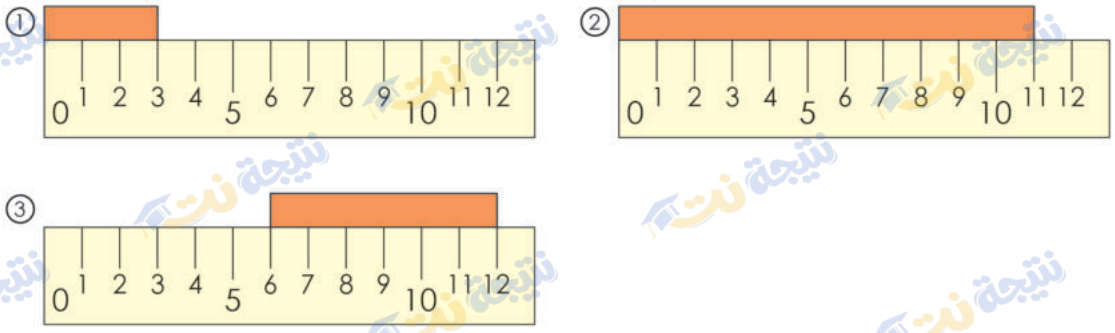
(2) When you measure the lengths with a ruler:

Ⓐ is 7 cm, Ⓑ is 8 cm, and Ⓒ is 5 cm. So, the longest is Ⓑ.

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Try

(1) What is the length of the tape in **cm**?

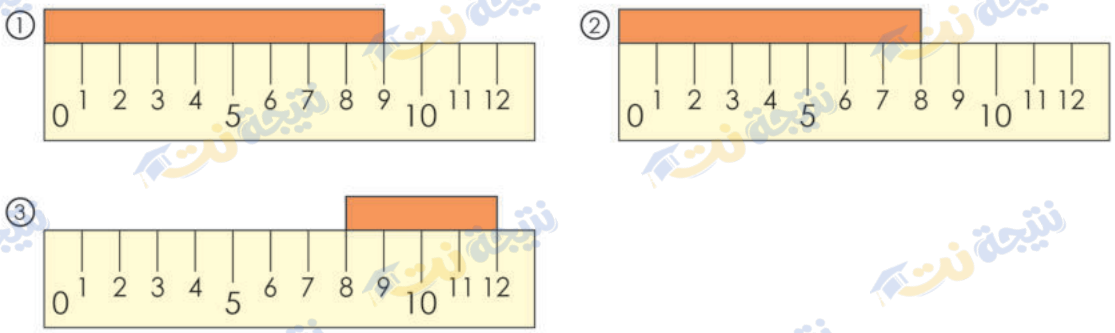


(2) Which line is the longest? Measure with a ruler, and answer with Ⓐ, Ⓑ, or Ⓒ.

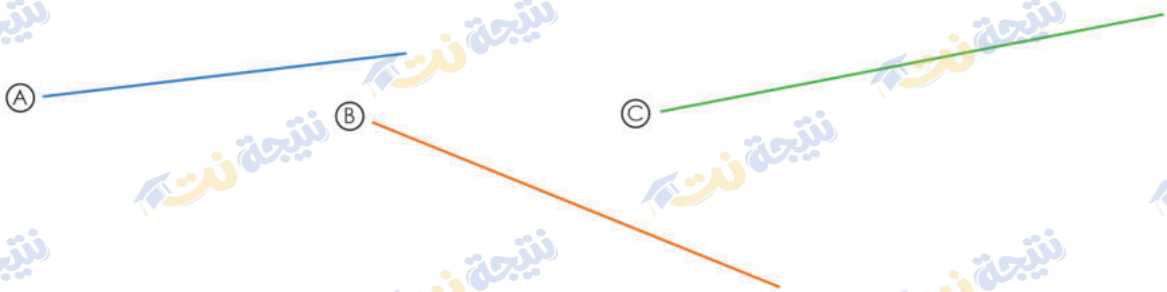


Exercise

(1) What is the length of the tape in **cm**?



(2) Which line is the longest? Measure with a ruler, and answer with Ⓐ, Ⓑ, or Ⓒ.



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5-2 Units of Length (Part 2)

Point!

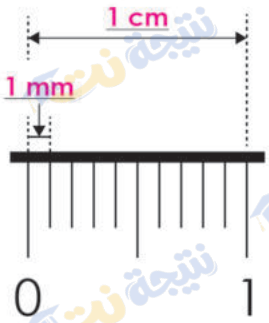
The length of one part when 1 cm is divided into 10 equal lengths is called **1 millimeter**. It is written as **1 mm**.

Millimeter is also a unit of length.



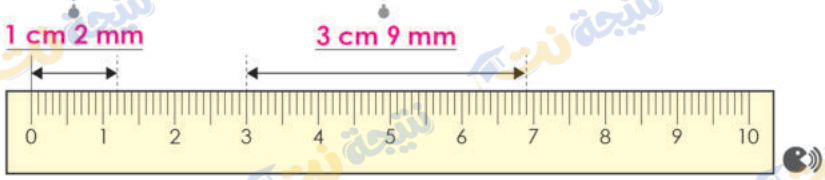


1 cm = **10 mm**



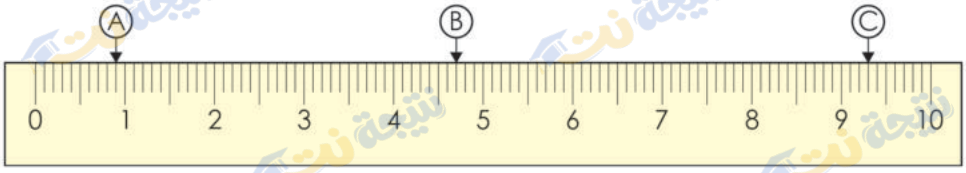
1 cm and 2 mm make 1 cm 2 mm in total.

Counting from a mark in the middle: 1 cm is 3 parts, which is **3 cm**, and 1 mm is 9 parts, which is **9 mm**. That makes **3 cm 9 mm** in total.



Warm Up

(1) What is the length from the zero point to Ⓐ, Ⓑ and Ⓒ respectively?



(2) Write the missing unit of length in the box.

① Length of a pencil: 13 ☐ ② Thickness of a notebook: 5 ☐

How to Solve

(1) Ⓐ: 9 parts of 1 mm, which is 9 mm.

Since it is 1 mm shorter than 1 cm, you can think of it as 9 mm.

Ⓑ: 4 cm and 7 mm (7 parts of 1 mm), which is 4 cm 7 mm.

Ⓒ: 9 cm and 3 mm (3 parts of 1 mm), which is 9 cm 3 mm.

(2) ① Length of a pencil: 13 cm ② Thickness of a notebook: 5 mm

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Try

(1) What is the length of the following items in **cm** and **mm**?

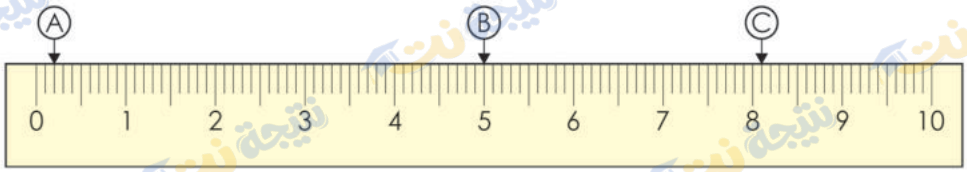
①



②



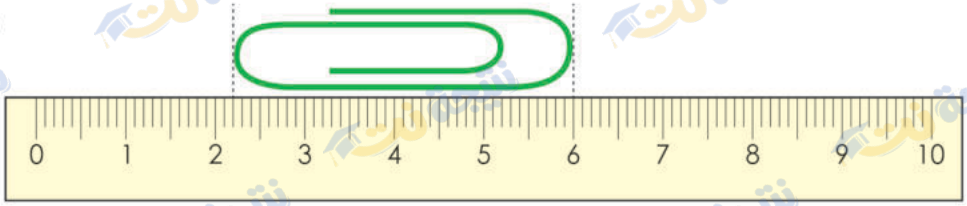
(2) What is the length from the left end to Ⓐ, Ⓑ and Ⓒ respectively?



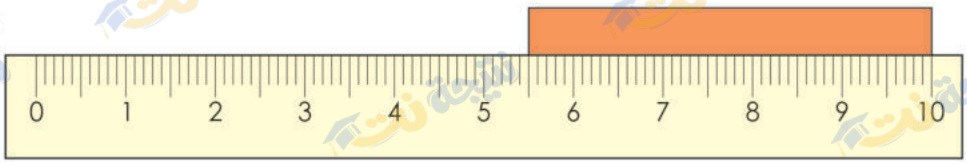
Exercise

(1) What is the length of the following items in **cm** and **mm**?

①



②



(2) Write the missing unit of length in the box.

① Length of a grain of rice: 5 ☐

② length of an eraser: 6 ☐

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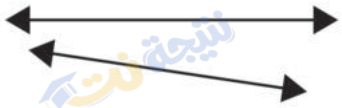
5-3 Units of Length (Part 3)

Point!

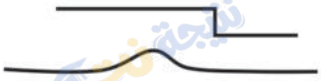
A straight line is called a **Line**.

Example

Line



Not a Line



We can change the unit to express the same length, using the rule **1 cm = 10 mm**.

Example

8 cm = **80** mm 3 cm 2 mm = **32** mm 45 mm = **4** cm **5** mm

3 cm 2 mm
30 mm + 2 mm = 32 mm

45 mm
40 mm + 5 mm = 4 cm 5 mm

Warm Up

(1) What is the length of the line below in **cm** and **mm**?

_____

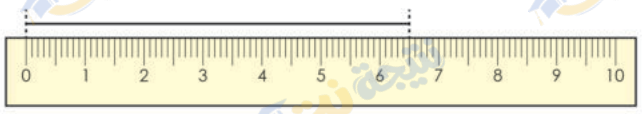
(2) Write the missing number in the box.

① 6 cm = ☐ mm ② 7 cm 3 mm = ☐ mm

③ 29 mm = ☐ cm ☐ mm

How to Solve

(1) Measure the length by aligning the left end of the line with the 0 mark on the ruler. The line measures **6 cm 5 mm**.



Hold the ruler firmly with both hands, and read the scale carefully.

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(2) ① 6 cm = 60 mm

1 cm = 10 mm

② 7 cm,3 mm = 73 mm

7 cm 3 mm

70 mm + 3 mm = 73 mm

③ 29 mm = 2 ,cm 9 mm

29 mm

20 mm + 9 mm = 2 cm 9 mm

Try

(1) What is the length of the following lines?

①

② 

(2) Write the missing number in the box.

① 1 cm = ☐ mm

② 6 cm,6 mm = ☐ mm

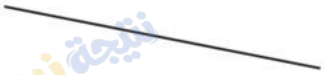
③ 47 mm = ☐ ,cm ☐ mm

④ 70 mm = ☐ cm

Exercise

(1) What is the length of the following lines?

① 

② 

(2) Write the missing number in the box.

① 9 cm = ☐ mm

② 4 cm,3 mm = ☐ mm

③ 77 mm = ☐ ,cm ☐ mm

④ 20 mm = ☐ cm

⑤ 9 cm,9 mm = ☐ mm

⑥ 68 mm = ☐ ,cm ☐ mm

⑦ 8 cm,1 mm = ☐ mm

⑧ 38 mm = ☐ ,cm ☐ mm

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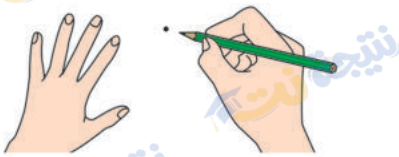
5-4 How to Draw Straight Line

Point!

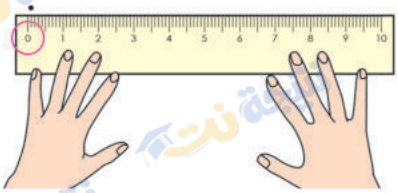
A ruler is not only used for measuring the length of objects, but also for **drawing lines**.

< How to draw a **5 cm** line >

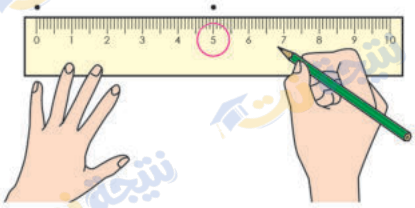
❶ Draw a starting point.



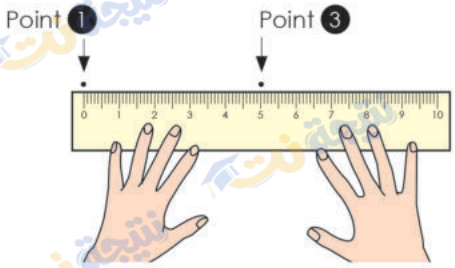
❷ Align the ruler. Align the 0 mark on the ruler with the starting point.



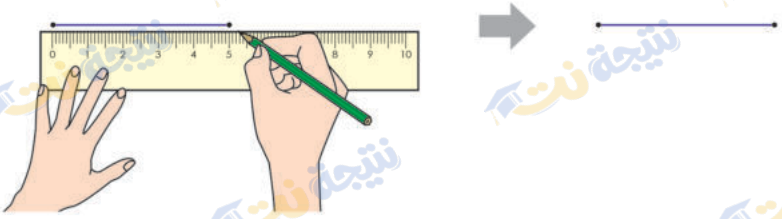
❸ Draw the ending point.
Draw another point at the 5 cm mark.



❹ Use the straight edge.
and align the
plain edge with the two points.



❺ Draw the line. Hold the ruler firmly and connect the two points with a line.



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Warm Up

Draw a straight line that is 8 cm 3 mm long.

How to Solve

❶ Draw the starting point.

❷ Align the 0 mark of the ruler with the starting point.

❸ Draw the ending point at the 8 cm 3 mm mark.

❹ Align the straight edge with the two points.

❺ Hold the ruler firmly and connect the points.

Try

Draw lines of the following lengths.

(1) 6 cm

(2) 5 cm,8 mm

(3) 65 mm

Exercise

Draw lines of the following lengths.

(1) 9 cm

(2) 3 cm,7 mm

(3) 89 mm

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5-5 Calculating Lengths

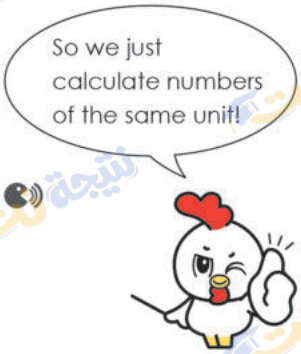
Point!

When calculating lengths, you must calculate **units of the same type together** : centimeters (cm) with cm, and millimeters (mm) with mm.

Example

4 cm + 3 cm 8 mm = 7 cm, 8 mm

6 cm 5 mm − 2 mm = 6 cm, 3 mm



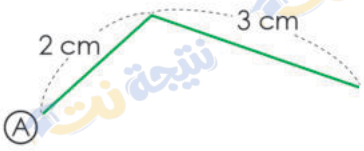
Warm Up

(1) Calculate the following lengths.

① 5 mm + 3 cm,4 mm

② 14 cm,2 mm − 8 cm

(2) Compare the length of Line Ⓐ and Line Ⓑ.





① What is the length of Line Ⓐ?

② What is the length of Line Ⓑ?

③ Which line is longer, and by how much?

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How to Solve

(1) ① 5 mm + 3 cm, 4 mm = 3 cm, 9 mm

Calculate units of the same type together. (mm + mm)

② 14 cm, 2 mm − 8 cm = 6 cm, 2 mm

Calculate units of the same type together. (cm + cm)

(2) ① Line Ⓐ: The length is 2 cm plus 3 cm.

2 cm + 3 cm = 5 cm

② Line Ⓑ: The length is 1 cm 7 mm plus 4 cm.

1 cm, 7 mm + 4 cm = 5 cm, 7 mm

③ Compare the lengths. Line Ⓑ 5 cm 7 mm is longer than Line Ⓐ 5 cm.

Subtract the length of Line Ⓐ from the length of Line Ⓑ.

5 cm, 7 mm − 5 cm = 7 mm

Answer: Line Ⓑ is 7 mm longer.

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Try

(1) Calculate the following lengths.

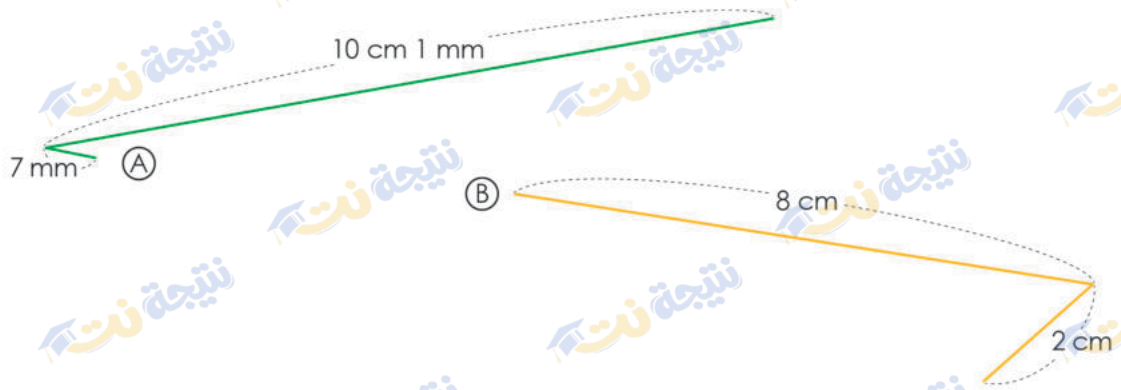
① 6 mm + 12 cm,2 mm

② 21 cm,5 mm − 7 cm

③ 3 cm + 7 cm,8 mm

④ 8 cm,9 mm − 4 mm

(2) Compare the length of Line Ⓐ and Line Ⓑ.



① What is the length of Line Ⓐ?

② What is the length of Line Ⓑ?

③ Which line is longer, and by how much?

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Exercise

(1) Calculate the following lengths.

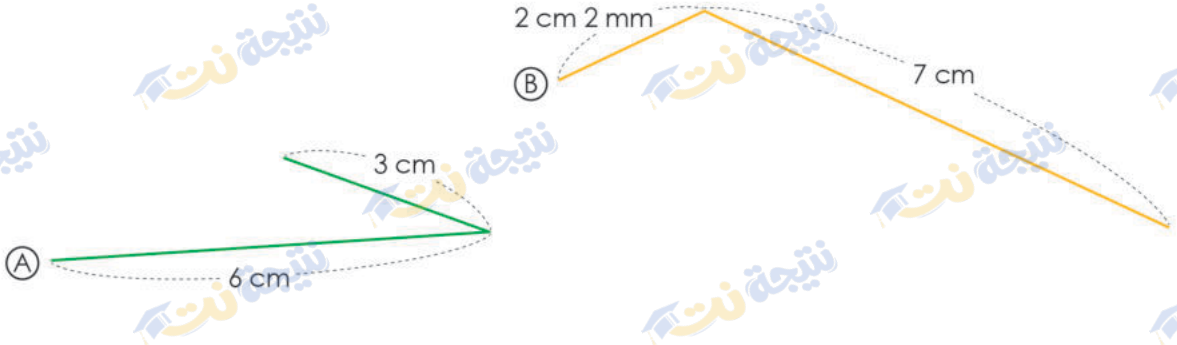
① 5 mm + 5 cm,4 mm

② 17 cm,3 mm − 8 cm

③ 4 cm + 13 cm,2 mm

④ 11 cm,6 mm − 3 mm

(2) Compare the length of Line Ⓐ and Line Ⓑ.



① What is the length of Line Ⓐ?

② What is the length of Line Ⓑ?

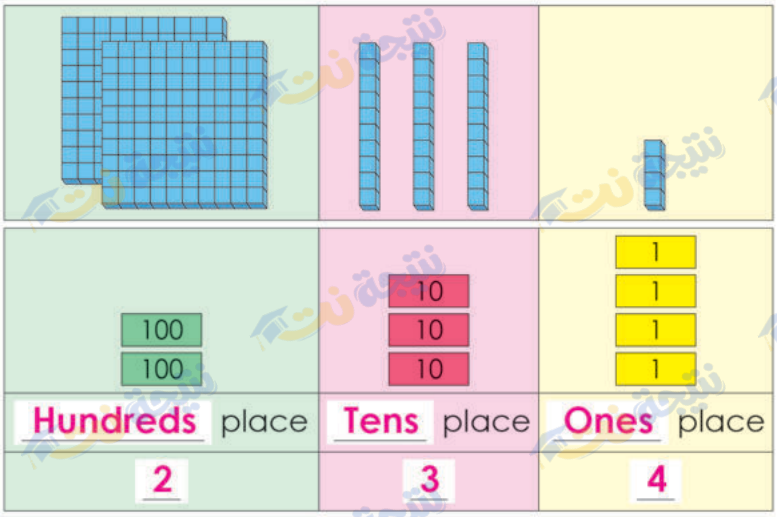
③ Which line is longer, and by how much?

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6-1 Numbers Bigger Than 100 (Part 1)

Point!

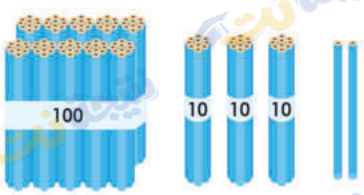
- A number made by combining two 100s is called **Two Hundred**.
- The number made by combining Two Hundred and Thirty-four is called **Two Hundred Thirty-four**.
  We write this number as **234**.
  The 2 in 234 is the digit in the **Hundreds place**.





Warm Up

(1) Write the number shown by the sticks or paper in digits.

① 

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② 

(2) Read the following numbers.

① 467 ② 711

(3) Write the following numbers in digits.

① Six Hundred Eighty-four

② Five Hundred Twenty-nine

How to Solve

(1) ① Because there is 1 hundred, 3 tens, and 2 ones, the number is 132.

② Because there are 3 hundreds, 1 ten, and 4 ones, the number is 314.

(2) ① Four Hundred Sixty-seven

② Seven Hundred Eleven

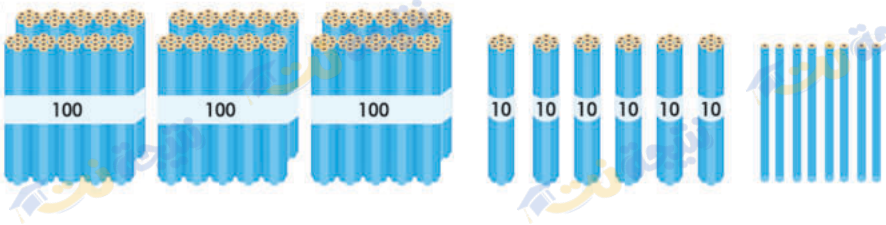
(3) ① 684 ② 529

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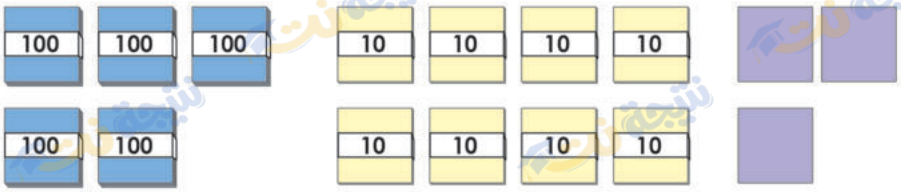
Try

(1) Write the number shown by the sticks or paper in digits.

①



②



(2) Read the following numbers.

① 198 ② 333

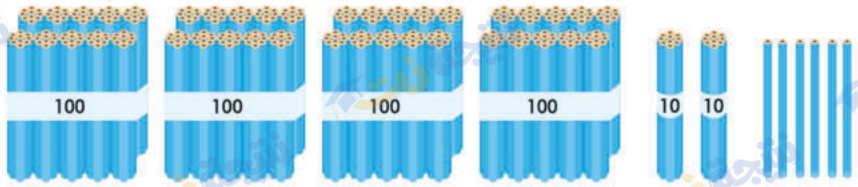
(3) Write the following numbers in digits.

① Four Hundred Seventy-two ② Two Hundred Twenty-two

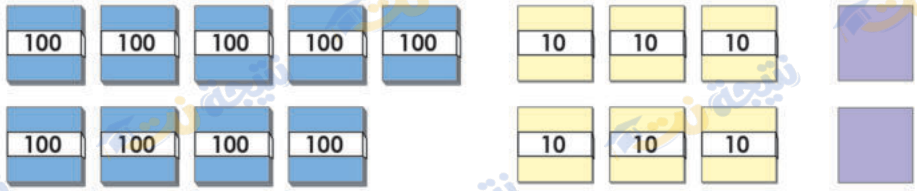
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Exercise

(1) Write the number shown by the sticks or paper in digits.

① 

② 

③ 

(2) Read the following numbers.

① 539 ② 876 ③ 574

(3) Write the following numbers in digits.

① Three Hundred Fifty-three

② Seven Hundred Seventeen

③ Four Hundred Fourteen

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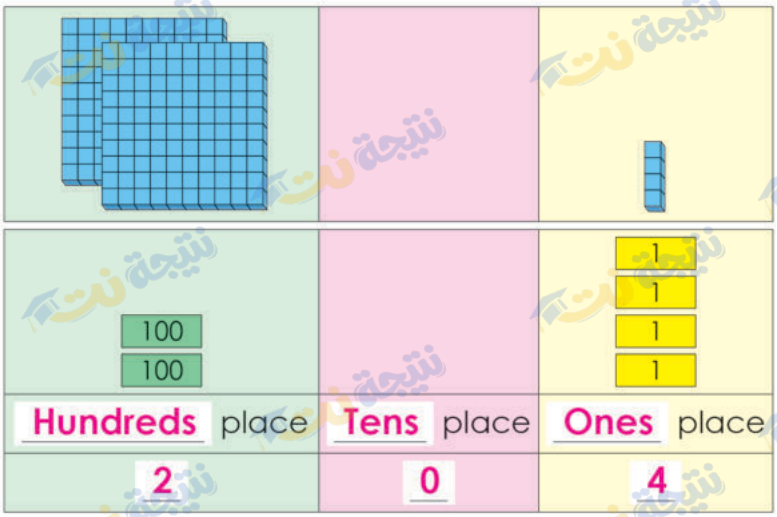
6-2 Numbers Bigger Than 100 (Part 2)

Point!

The number made by combining Two Hundred and Four is called **Two Hundred Four**.

We write this number as **204**.

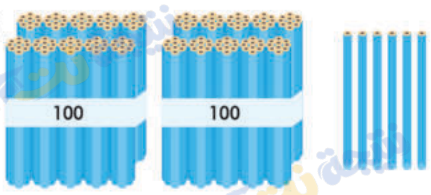
Since there are no tens, we write **0** in the Tens place.

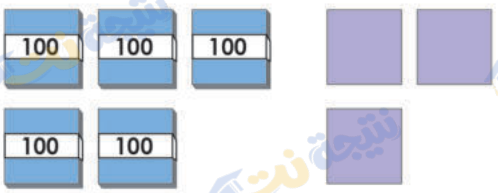




Warm Up

(1) Write the number shown by the sticks or paper in digits.

① 

② 

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(2) Read the following numbers.

① 404 ② 500

(3) Write the following numbers in digits.

① Six Hundred Nine

② Eight Hundred

How to Solve

(1) ① Because there are 2 hundreds, 0 tens, and 6 ones, the number is 206 .

② Because there are 5 hundreds, 0 tens, and 3 ones, the number is 503 .

(2) ① Four Hundred Four

② Five Hundred

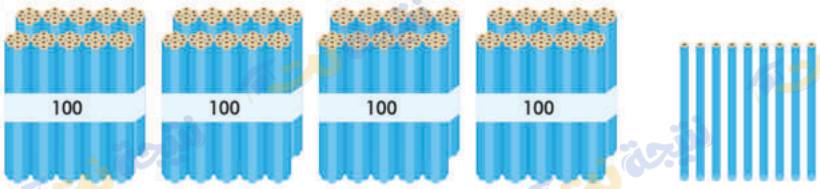
(3) ① 609 ② 800

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Try

(1) Write the number shown by the sticks or paper in digits.

①



②



(2) Read the following numbers.

① 108 ② 700

(3) Write the following numbers in digits.

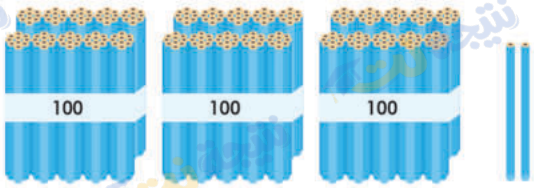
① Four Hundred Two ② Two Hundred

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Exercise

(1) Write the number shown by the sticks or paper in digits.

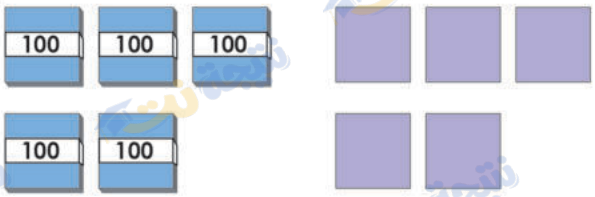
①



②



③



(2) Read the following numbers.

① 306 ② 900 ③ 606

(3) Write the following numbers in digits.

① Three Hundred Seven ② Four Hundred

③ Eight Hundred One

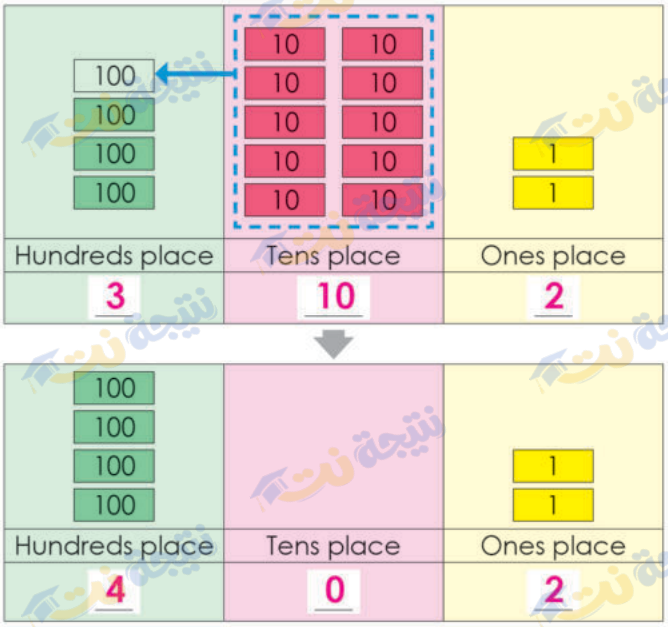
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6-3 Numbers Bigger Than 100 (Part 3)

Point!

The digit in each place represents how many **100s**, **10s**, or **1s** are in the number.

A digit from 0 to 9 fits in a single place, but the number **10** does not.





When there are 10 of the 10s, they are combined to make one hundred, which is moved to the **Hundreds place**.

402 is a number combined from 400 and 2. This can be expressed as an mathematical sentence: 402 = **400 + 2**

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Warm Up

(1) Write the missing number in the box.

① The number combining 3 hundreds, 2 tens, and 6 ones is [ ].

② 804 is a number combining [ ] hundreds and [ ] ones.

(2) Write the following number.

The number with 2 in the Hundreds place, 0 in the Tens place, and 1 in the Ones place.

(3) Express the following sentences as expanded form.

① 493 is a number combining 400, 90, and 3.

② 607 is a number combining 600 and 7.

How to Solve

(1) ① The number combining 3 hundreds, 2 tens, and 6 ones is [326].

② 804 is a number combining [8] hundreds and [4] ones.

(2) 201

(3) ① 493 = 400 + 90 + 3

② 607 = 600 + 7

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Try

(1) Write the missing number in the ☐.

① The number combining 4 hundreds, 8 tens, and 9 ones is ☐.

② 707 is a number combining ☐ hundreds and ☐ ones.

(2) Write the following number.

① The number with 6 in the Hundreds place, 2 in the Tens place, and 8 in the Ones place.

② The number with 5 in the Hundreds place, 2 in the Tens place, and 0 in the Ones place.

③ The number with 2 in the Hundreds place, 0 in the Tens place, and 1 in the Ones place.

(3) Express the following sentences as expanded form.

① 325 is a number combining 300, 20, and 5.

② 403 is a number combining 400 and 3.

③ 890 is a number combining 800 and 90.

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Exercise

(1) Write the missing number in the ☐.

① The number combining 5 hundreds, 7 tens, and 0 ones is ☐.

② 660 is a number combining ☐ hundreds and ☐ tens.

③ 304 is a number combining ☐ hundreds and ☐ ones.

(2) Write the following number.

① The number with 4 in the Hundreds place, 7 in the Tens place, and 0 in the Ones place

② The number with 6 in the Hundreds place, 0 in the Tens place, and 2 in the Ones place

③ The number with 9 in the Hundreds place, 1 in the Tens place, and 0 in the Ones place.

(3) Express the following sentences as expanded form.

① 876 is a number combining 800, 70, and 6.

② 503 is a number combining 500 and 3.

③ 210 is a number combining 200 and 10.

④ 340 is a number combining 300 and 40.

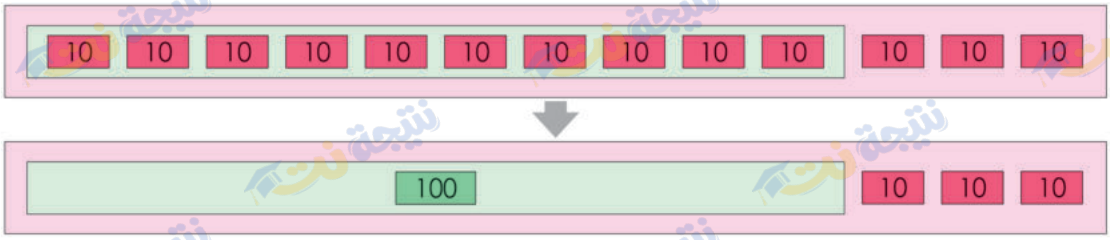
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6-4 Numbers Bigger Than 100 (Part 4)

Point!

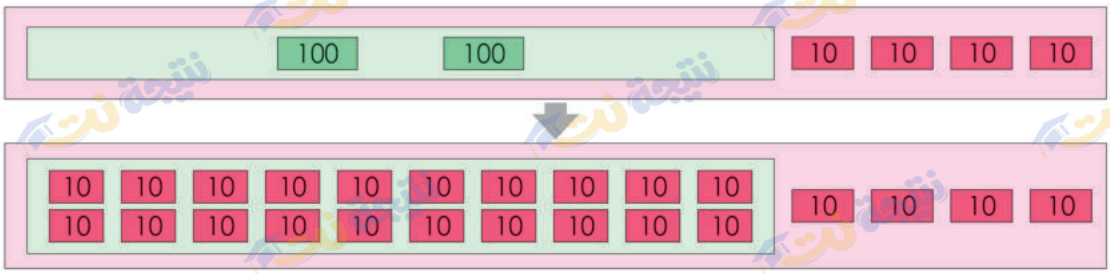
We can think of numbers like hundreds or multiples of ten based on groups of 10.

Example 1 What number is made by combining **13 tens**?



13 tens < 10 tens make 100 / 3 tens make 30 > 130

Example 2 How many tens make **240**?



240 < 200 is 20 tens / 40 is 4 tens > 24 tens

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Warm Up

(1) Think about the number made by combining **17 tens**.

① What number is made by combining 10 tens?

② What number is made by combining 7 tens?

③ When combining ① and ②, what number is made by combining 17 tens?

(2) Answer the following questions.

① What number is made by combining **50 tens**?

② How many tens make **280**?

How to Solve

(1) Separate the 17 into 10 and 7.

① 10 tens make 100

② 7 tens make 70

③ 100 + 70 = 170

(2) ① 50 tens make 500

② Separate the 280 into 200 and 80.

200 is 20 tens, 80 is 8 tens ⟶ 20 + 8 = 28 tens

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Try

(1) Think about the number made by combining **42 tens**.

① What number is made by combining 40 tens?

② What number is made by combining 2 tens?

③ When combining ① and ②, what number is made by combining 42 tens?

(2) Think about how many tens are combining to make **140**.

① How many tens make 100?

② How many tens make 40?

③ When combining ① and ②, how many tens are combining to make 140?

(3) Answer the following questions.

① What number is made by combining **27 tens**?

② What number is made by combining **90 tens**?

③ How many tens make **800**?

④ How many ones make **180**?

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Exercise

(1) Think about the number made by combining **63 tens**.

① What number is made by combining 60 tens?

② What number is made by combining 3 tens?

③ When combining ① and ②, what number is made by combining 63 tens?

(2) Think about the number made by combining **85 tens**.

① What number is made by combining 80 tens?

② What number is made by combining 5 tens?

③ When combining ① and ②, what number is made by combining 85 tens?

(3) Think about how many tens are combining to make **520**.

① How many tens make 500?

② How many tens make 20?

③ When combining ① and ②, how many tens are combining to make 520?

(4) Think about how many tens are combining to make **740**.

① How many tens make 700?

② How many tens make 40?

③ When combining ① and ②, how many tens are combining to make 740?

(5) Answer the following questions.

① What number is made by combining **39 tens**?

② What number is made by combining **50 tens**?

③ How many tens make **900**?

④ How many ones make **238**?

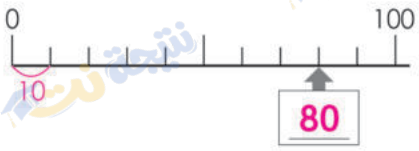
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6-5 Numbers Bigger Than 100 (Part 5)

Point!

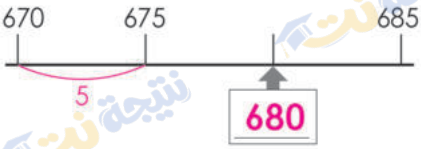
When reading a number line, first check how much each small scale represents.

Example 1



Since there are 10 small intervals between 0 and 100, one scale represents 10.

Example 2



Since there is 1 small interval between 670 and 675, one scale represents 5.

When you focus on the value of one scale, you can read greater numbers on the number line the same way you read numbers up to 100!



Warm Up

(1) Write the numbers represented by scales Ⓐ and Ⓑ.

① 

② 

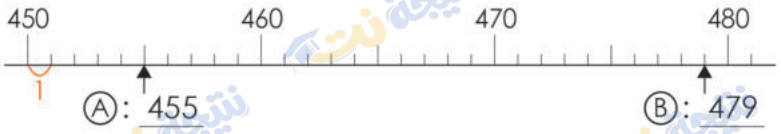
(2) Look at the number line and write ↑ mark at the tick mark that represents **830**.



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How to Solve

(1) ① Since there are 10 small intervals between 450 and 460, one scale represents 1.



② Since there are 10 small intervals between 0 and 100, one scale represents 10.



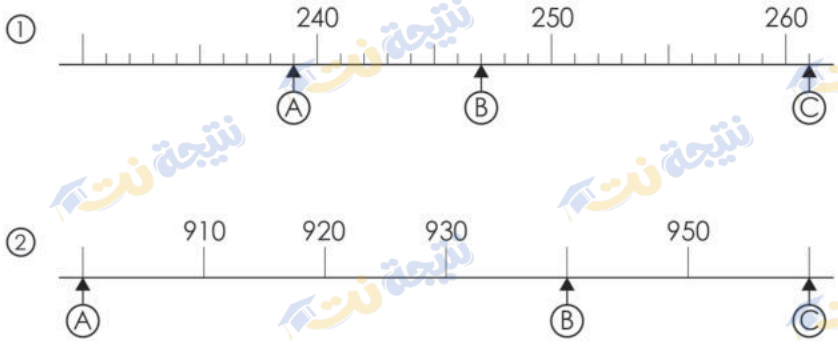
(2) Since there are 10 small intervals between 700 and 800, one scale represents 10. The number is 30 more than 800. The number is 830.



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Try

(1) Write the numbers represented by scale Ⓐ, Ⓑ and Ⓒ.



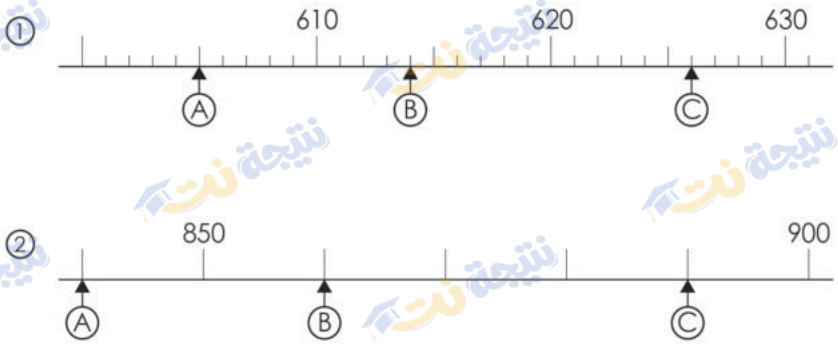
(2) Look at the number line and write ↑ mark at the tick mark that represents **520**.



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Exercise

(1) Write the numbers represented by scale Ⓐ, Ⓑ and Ⓒ.



(2) Look at the number line and write ↑ mark at the tick mark that represents **203**.



(3) Look at the number line and write ↑ mark at the tick mark that represents **950**.

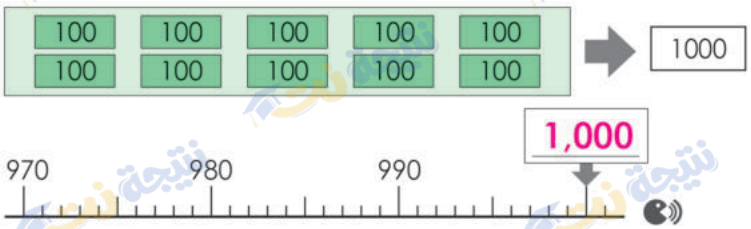


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6-6 Numbers Bigger Than 100 (Part 6)

Point!

The number made by putting ten 100s together is read as **One Thousand**, and is written as **1,000**.



Even a single number can be expressed in different ways.

Example What number is **640**?

640 is the number made by combining 600 and 40.

→ 640 = **600 + 40**

640 is the number that is 60 less than 700.

→ 640 = **700 − 60**

640 is the number made by collecting **64** tens.

Warm Up

(1) Write the following numbers using digits.

① The number that is 10 less than 1,000.

② The number that is 3 more than 997.

(2) Express **470** in different ways. Write the missing number in the box.

① 470 = ☐ + 70 ② 470= ☐ − 30

③ 470 is the number made by collecting ☐ tens.

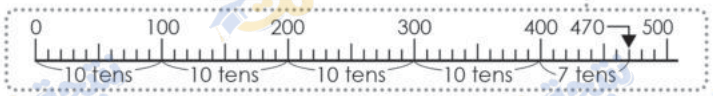
How to Solve

(1) ① 990 ② 1,000

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(2) ① 470 = 400 + 70 ② 470 = 500 − 30

③ 470 is the number made by collecting 47 tens.



Try

(1) Write the following numbers using digits.

① The number that is 20 less than 1,000.

② The number that is 100 less than 1,000.

③ The number that is 50 more than 950.

(2) Write the missing number in the box.

① 550 is the number made by combining ☐ and 50.

② 550 is the number that is 50 less than ☐.

(3) Express **820** in different ways. Write the missing number in the box.

① 820 = ☐ + 20 ② 820 = ☐ − 80

③ 820 is the number made by collecting ☐ tens.

Exercise

(1) Write the following numbers using digits.

① The number that is 90 less than 1,000.

② The number that is 200 less than 1,000.

③ The number that is 2 more than 998.

④ The number that is 10 more than 990.

(2) Write the missing number in the box.

① 290 is the number made by combining ☐ and 90.

② 290 is the number that is 10 less than ☐.

(3) Express **660** in different ways. Write the missing number in the box.

① 660 = ☐ + 60 ② 660 = ☐ − 40

③ 660 is the number made by collecting ☐ tens.

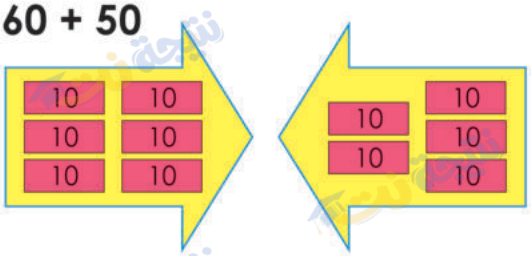
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6-7 Numbers Bigger Than 100 (Part 7)

Point!

For calculations of **multiples of ten**, think about how many **groups of** 10 are involved.

Example **60 + 50**

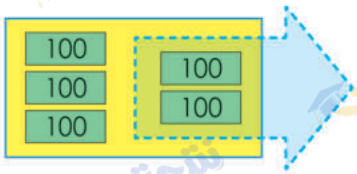


Since there are 6 groups of ten + 5 groups of ten = 11 groups of 10 in total,

60 + 50 = 110

For calculations of **multiples of one hundred**, think about how many **groups of** 100 are involved.

Example **500 − 200**



Since there are 5 groups of 100 − 2 groups of 100 = 3 groups of 100 remaining,

500 − 200 = 300

Warm Up

(1) Let's do the next calculation.

① 200 + 800 ② 110 − 50 ③ 700 − 300

(2) You did jump rope. You jumped 70 times the first time and 60 times the second time. How many times did you jump in total? Write the mathematical sentence and the answer.

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How to Solve

(1) ① Groups of 100: 2 + 8 = 10 ⟶ 200 + 800 = 1000

② Groups of 10: 11 − 5 = 6 ⟶ 110 − 50 = 60

③ Groups of 100: 7 − 3 = 4 ⟶ 700 − 300 = 400

(2) mathematical sentence: 70 + 60 = 130

Groups of 10: 7 + 6 = 13 ⟶ 70 + 60 = 130

Answer: 130 times

Try

(1) Let's do the next calculation.

① 20 + 60 ② 70 + 50 ③ 90 − 40

④ 150 − 70 ⑤ 300 + 400 ⑥ 600 + 400

⑦ 900 − 700 ⑧ 1,000 − 200

(2) You have 500 EGP. You spent 200 EGP shopping. How much EGP do you have left? Write the mathematical sentence and the answer.

Exercise

(1) Let's do the next calculation.

① 30 + 60 ② 70 + 70 ③ 50 + 90

④ 110 − 30 ⑤ 130 − 40 ⑥ 170 − 90

⑦ 200 + 600 ⑧ 300 + 700 ⑨ 100 + 900

⑩ 600 − 200 ⑪ 700 − 400 ⑫ 1,000 − 900

(2) You have a red ribbon that is 60 cm long and a blue ribbon that is 80 cm long. How long are the red and blue ribbons combined in **cm**? Write the mathematical sentence and the answer.

(3) There were 140 candies. You gave 50 candies to your friends. How many candies are left? Write the mathematical sentence and the answer.



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6-8 Numbers Bigger Than 100 (Part 8)

Point!

For calculations involving hundreds and tens or ones, think about the structure of large numbers (place value).

Example 1 300 + 20

Hundreds place	Tens place	Ones place
100 100 100		
3	0	0
	+	
	10 10	
	2	0
100 100 100	10 10	
3	2	0

300 and 20 combined makes 320.

300 + 20 = 320

Example 2 430 − 30

400 30

Hundreds place	Tens place	Ones place
100 100 100 100	10 10 10	
4	3	0
100 100 100 100		
4	0	0

430 is made up of 400 and 30.

Taking away 30 leaves 400.

430 − 30 = 400

Warm Up

Let's do the next calculation.

(1) 200 + 50 (2) 560 − 60 (3) 600 + 8 (4) 704 − 4

How to Solve

(1) 200 and 50 combined makes 250

(2) 560 is 500 and 60. Taking away 60 leaves 500

(3) 600 and 8 combined makes 608

(4) 704 is 700 and 4. Taking away 4 leaves 700

560 → 500, 60

704 → 700, 4

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Try

(1) Let's do the next calculation.

① 200 + 90 ② 700 + 60 ③ 440 − 40

④ 790 − 90 ⑤ 600 + 4 ⑥ 900 + 9

⑦ 805 − 5 ⑧ 207 − 7

(2) Fady has 230 EGP. He bought a snack for 30 EGP at the store. How much EGP does he have left? Write the mathematical sentence and the answer.

Exercise

(1) Let's do the next calculation.

① 300 + 40 ② 900 + 10 ③ 400 + 40

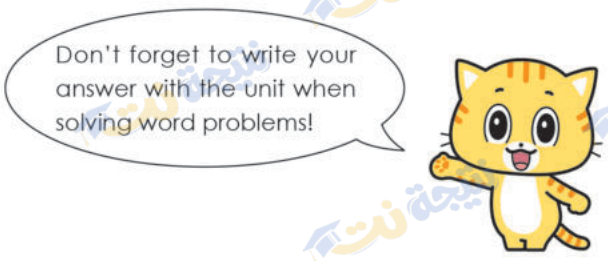
④ 190 − 90 ⑤ 340 − 40 ⑥ 570 − 70

⑦ 300 + 6 ⑧ 600 + 2 ⑨ 700 + 7

⑩ 202 − 2 ⑪ 806 − 6 ⑫ 905 − 5

(2) Maryam has 420 EGP. She bought a snack for 20 EGP at the store. How much EGP does she have left? Write the mathematical sentence and the answer with the unit.

(3) You climbed 200 steps of a staircase. There are 7 more steps left to the top. How many steps are there in total? Write the mathematical sentence and the answer.



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6-9 Numbers Bigger Than 100 (Part 9)

Point!

To compare between numbers, compare the digits starting from the **largest place value.** Use the Symbols (> , or <).

- 5 > 3 「5 is greater than 3」
- 5 < 7 「5 is less than 7」

Example

School Ⓐ has 298 students, School Ⓑ has 359 students, and School Ⓒ has 362 students. Compare the numbers of students.

① Compare School Ⓐ (298) and School Ⓑ (359).

- Compare the largest place value (the Hundreds place).

→ School Ⓐ has 2, School Ⓑ has 3.

School Ⓑ has more students.

	Hundreds place	Tens place	Ones place
School Ⓐ	2	9	8
School Ⓑ	3	5	9
School Ⓒ	3	6	2

We express "359 is greater than 298" as 359 > 298 .

② Compare School Ⓑ (359) and School Ⓒ (362).

- Compare the Hundreds place. Both are 3 (Same).
- Next, compare the next place value (the Tens place).

→ School Ⓑ has 5, School Ⓒ has 6. School Ⓒ has more students.

We express "359 is less than 362" as 359 < 362 .

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Warm Up

Write the missing symbol in the box (>, or <).

(1) 275 ☐ 300
(2) 653 ☐ 641
(3) 573 ☐ 578
(4) 104 ☐ 98

How to Solve

(1) 275 < 300 — Compare the Hundreds place.
(2) 653 > 641 — Compare the Tens place.
(3) 573 < 578 — Compare the Ones place.
(4) 104 > 98 — Compare the Hundreds place. The number 98 is considered to have 0 in the Hundreds place.

Try

Write the missing symbol in the ☐ (>, or <).

(1) 275 ☐ 300
(2) 566 ☐ 606
(3) 376 ☐ 369
(4) 282 ☐ 291
(5) 718 ☐ 712
(6) 493 ☐ 490
(7) 107 ☐ 97
(8) 87 ☐ 188

Exercise

Write the missing symbol in the ☐ (>, or <).

(1) 265 ☐ 196
(2) 456 ☐ 564
(3) 973 ☐ 945
(4) 182 ☐ 198
(5) 541 ☐ 547
(6) 826 ☐ 828
(7) 116 ☐ 96
(8) 91 ☐ 119

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6-10 Numbers Bigger Than 100 (Part 10)

Point!

- We can express the comparison between a number and an expression as an inequality or an mathematical sentence.
- The symbols > and < allow us to express situations where the size is different.

- 120 > 50 + 60 (110) 「120 is **greater than** 50 + 60」
- 120 < 50 + 80 (130) 「120 is **less than** 50 + 80」
- 120 = 50 + 70 (120) 「120 is **equal to** 50 + 70」

Warm Up

(1) Write the missing symbol in the ☐ (=, >, or <).

① 160 ☐ 70 + 80 ② 700 ☐ 710 − 10 ③ 90 + 50 ☐ 150

(2) Sara has 130 EGP. She wants to buy a snack for 70 EGP and a juice for 50 EGP

① Express the relationship between the money Sara has and the total cost using an expression.

② Can Sara buy the snack and the juice?

How to Solve

(1) ① 160 > 70 + 80 (150) ② 700 = 710 − 10 (700)

③ 90 + 50 (140) < 150

(2) ① Sara has 130 EGP.

The total cost is 70 + 50 = 120 EGP

The relationship is → 130 > 70 + 50

② Sara's money is more than the cost. → Yes, she can buy them.

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Try

(1) Write the missing symbol in the ☐ (=, >, or <).

① 160 ☐ 60 + 70

② 150 ☐ 80 + 80

③ 700 ☐ 710 − 10

④ 800 + 90 ☐ 900

⑤ 70 + 50 ☐ 130

⑥ 170 − 50 ☐ 120

(2) Omar has 140 EGP. He wants to buy a juice for 60 EGP and a snack for 80 EGP.

① Express the relationship between the money Omar has and the total cost.

② Can Omar buy the juice and the snack?

Exercise

(1) Write the missing symbol in the ☐ (=, >, or <).

① 140 ☐ 60 + 90

② 190 ☐ 90 + 90

③ 500 ☐ 520 − 20

④ 400 + 80 ☐ 500

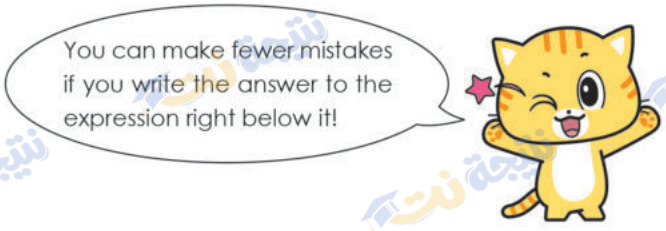
⑤ 20 + 90 ☐ 110

⑥ 160 − 30 ☐ 120

(2) Malak has 120 EGP. She wants to buy a pencil case for 90 EGP and a notebook for 40 EGP.

① Express the relationship between the money Malak has and the total cost.

② Can Malak buy the pencil case and the notebook?



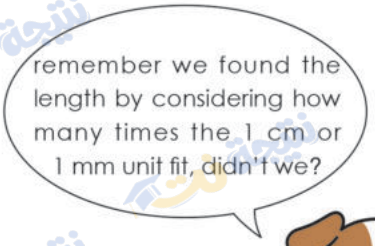
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7-1 Deciliter (dL) and Capacity

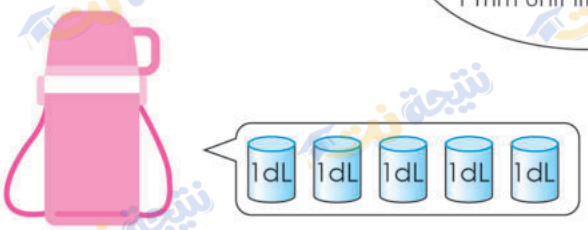
Point!

- To express the capacity of water or other liquids, we measure how many times the unit of **one deciliter** fits.
- **Deciliter** is abbreviated as **dL** and is a **unit** of capacity.
- We use a **1 dL measuring cup** to find the volume of water that a water bottle or container holds.





Example



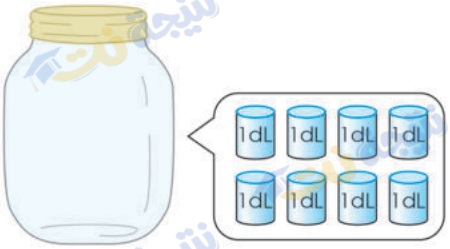


The capacity of water that the water bottle holds is **5 dL** because it is 5 times the 1 dL measuring cup.

Warm Up

The capacity of water held by two containers, Ⓐ and Ⓑ, was measured.

Ⓐ



Ⓑ



(1) What is the capacity of water held by containers Ⓐ and Ⓑ in **dL** respectively?

(2) Which container, Ⓐ or Ⓑ, holds more water?

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How to Solve

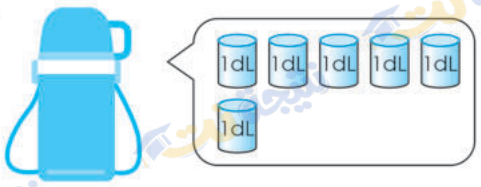
(1) Ⓐ: 8 times the 1 dL cup ⟶ 8 dL

Ⓑ: 6 times the 1 dL cup ⟶ 6 dL

(2) Comparing the numbers 8 dL is greater than 6 dL ⟶ Ⓐ

Try

The capacity of water held by two water bottles, Ⓐ and Ⓑ, was measured.

Ⓐ 

Ⓑ 

(1) What is the capacity of water held by water bottles Ⓐ and Ⓑ in **dL** respectively?

(2) Which water bottle, Ⓐ or Ⓑ, holds more water?

Exercise

(1) The capacity of water held by two water bottles, Ⓐ and Ⓑ, was measured.

Ⓐ 

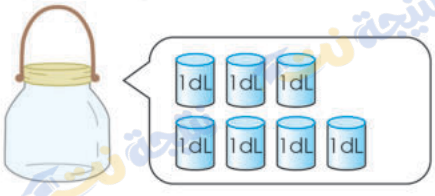
Ⓑ 

① What is the capacity of water held by water bottles Ⓐ and Ⓑ in **dL** respectively?

② Which water bottle, Ⓐ or Ⓑ, holds more water?

(2) The capacity of water held by two vases, Ⓐ and Ⓑ, was measured.

Ⓐ 

Ⓑ 

① What is the capacity of water held by water vases Ⓐ and Ⓑ in **dL** respectively?

② Which vase, Ⓐ or Ⓑ, holds more water?

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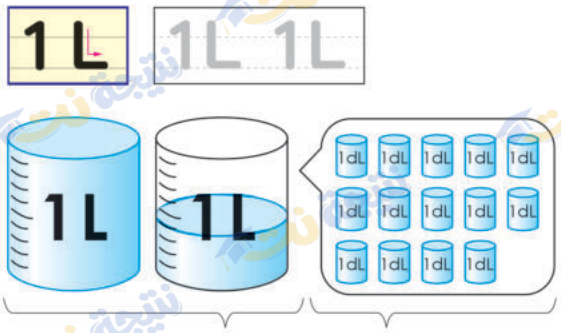
7-2 Liter (L) and Capacity

Point!

- We use the unit **Liter** to express a large capacity.
- **Liter** is abbreviated as **L** and, like dL, is a **unit** of capacity.
- The **1 L measuring cup** holds the same amount of water as **10 times the 1 dL measuring cup**.

1 L = 10 dL





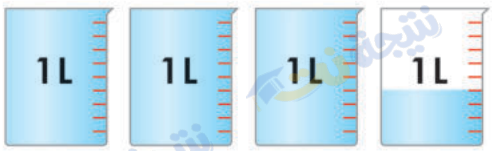
1 L 4 dL = 14 dL

1 L measuring cup:
Each small tick mark represents 1 dL.

Warm Up

(1) 3 L is the capacity of how many 1 L units?

(2) What is the capacity of water in **L** and **dL**, or in **dL**?



(3) Write the missing number in the ☐

① 7 L = ☐ dL ② 40 dL = ☐ L

③ 5 L,8 dL= ☐ dL ④ 23 dL = ☐ L ☐ dL

How to Solve

(1) 3 units

(2) 3 full 1 L measures and 4 marks (4 dL) → 3 L 4 dL

30 dL + 4 dL → 34 dL

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(3) ① 7 L = 70 dL ② 40 dL = 4 L

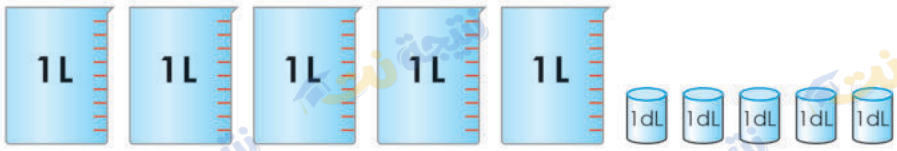
③ 5 L 8 dL = 58 dL (50 dL) ④ 23 dL = 2 ,L 3 dL (20 dL and 3 dL)

Try

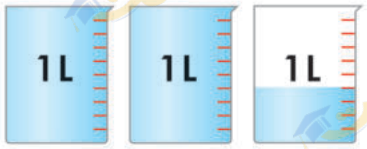
(1) 7 L is the capacity of how many 1 L units?

(2) What is the capacity of water in **L** and **dL**, or in **dL**?

①



②



(3) Write the missing number in the ☐.

① 7 L = ☐ dL ② 40 dL = ☐ L

③ 6 L 8 dL = ☐ dL ④ 23 dL = ☐ ,L ☐ dL

Exercise

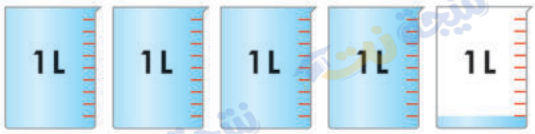
(1) 9 L is the capacity of how many 1 L units?

(2) What is the capacity of water in **L** and **dL**, or in **dL**?

①



②



(3) Write the missing number in the ☐.

① 9 L = ☐ dL ② 20 dL = ☐ L

③ 6 L 5 dL = ☐ dL ④ 88 dL = ☐ ,L ☐ dL

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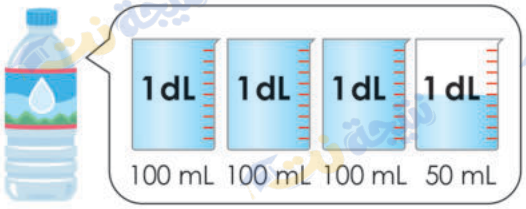
7-3 Milliliter (mL) and Capacity

Point!

- We use the unit **Milliliter** to express a capacity that is smaller than dL.
- **Milliliter** is abbreviated as **mL** and, like dL and L, is a **unit** of capacity.
- 1 L = **1,000 mL**

  1 dL = **100 mL**







The 1 dL unit is divided into 10 parts. One tick mark represents 10 mL.

The capacity of water in a bottle is 3 dL and 50 mL = **350 mL**

- Capacity calculations must be performed using **the same unit**.

Example

1 L, 5 dL + 3 L = **4 L 5 dL**

2 L, 6 dL − 2 L = **6 dL** (0 L)

Warm Up

(1) Write the missing number in the ☐.

2 dL 30 mL = ☐ mL

(2) Let's do the next calculation.

① 2 L,5 dL + 2 L

② 3 L,4 dL + 5 dL

③ 4 L,1 dL − 4 L

④ 7 L,8 dL − 6 dL

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How to Solve

(1) 2 dL, 30 mL = 230 mL
200 mL

(2) Calculate Liters (L) with Liters (L), and Deciliters (dL) with Deciliters (dL).

① 2 L,5 dL + 2 L = 4 L 5 dL
② 3 L,4 dL + 5 dL = 3 L,9 dL
③ 4 L,1 dL − 4 L = 1 dL
④ 7 L,8 dL − 6 dL = 7 L,2 dL

Try

(1) Write the missing number in the ☐.

① 1,000 mL = ☐ L
② 4 dL,80 mL = ☐ mL

(2) Let's do the next calculation.

① 6 L,2 dL + 3 L
② 2 L,1 dL + 8 dL
③ 3 L,5 dL − 2 L
④ 4 L,7 dL − 7 dL

(3) A pot contains 2 L 4 dL of water. A water bottle contains 5 dL of water. How much water is there in total? Write the mathematical sentence and the answer with the unit.

Exercise

(1) Write the missing number in the ☐.

① 2,000 mL = ☐ L
② 5 dL,10 mL = ☐ mL

(2) Let's do the next calculation.

① 5 L,5 dL + 3 L
② 6 L,2 dL + 7 dL
③ 7 L,4 dL − 7 L
④ 8 L,9 dL − 9 dL

(3) You have 1 L 4 dL of juice. If you drink 3 dL, how much juice is left? Write the mathematical sentence and the answer with the unit.

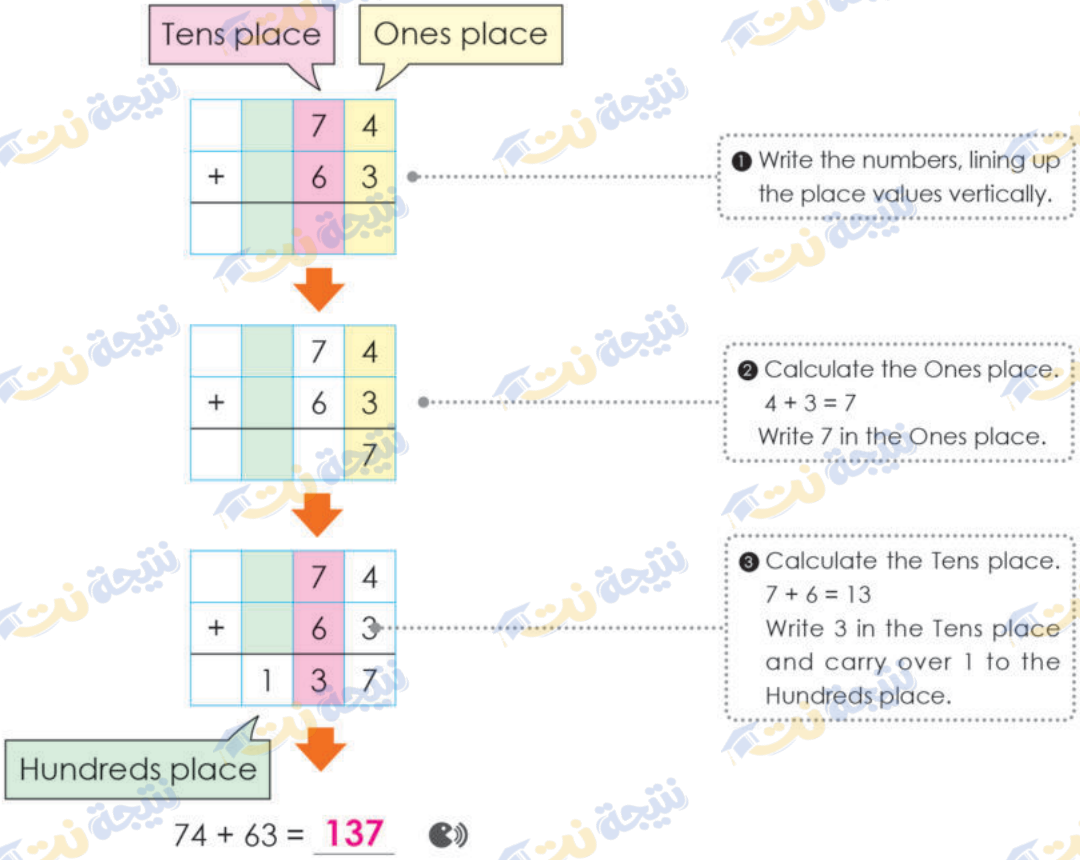
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8-1 Vertical Addition and Subtraction (Part 1)

Point!

In vertical addition like 74 + 63, when the sum in the Tens place exceeds 10, we **carry over 1** to the Hundreds place.

Example **74 + 63**



74 + 63 = **137**

Warm Up

Calculate using vertical method.

(1) 34 + 82

(2) 14 + 95

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How to Solve

(1)

		3	4
+		8	2
			6

Calculate the Ones place.
4 + 2 = 6

		3	4
+		8	2
	1	1	6

Calculate the Tens place.
3 + 8 = 11
Write 1 in the Tens place and carry over 1 to the Hundreds place.

(2)

		1	4
+		9	5
			9

Calculate the Ones place.
4 + 5 = 9

		1	4
+		9	5
	1	0	9

Calculate the Tens place.
1 + 9 = 10
Write 0 in the Tens place and carry over 1 to the Hundreds place.

Try

(1) Calculate the vertical method problems.

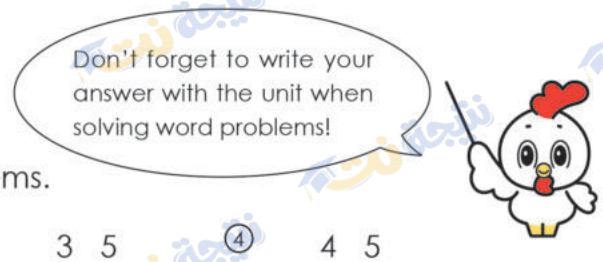
① $\begin{array}{r} 27 \\ +\ 92 \\ \hline \end{array}$ ② $\begin{array}{r} 61 \\ +\ 74 \\ \hline \end{array}$ ③ $\begin{array}{r} 43 \\ +\ 63 \\ \hline \end{array}$ ④ $\begin{array}{r} 52 \\ +\ 51 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 33 + 82 ② 56 + 82 ③ 68 + 71 ④ 49 + 60

(3) You are going on a field trip. There are 11 teachers and 95 children. What is the total number of people? Write the mathematical sentence and the answer.

Exercise



(1) Calculate the vertical method problems.

① $\begin{array}{r} 51 \\ +\ 77 \\ \hline \end{array}$ ② $\begin{array}{r} 22 \\ +\ 96 \\ \hline \end{array}$ ③ $\begin{array}{r} 35 \\ +\ 74 \\ \hline \end{array}$ ④ $\begin{array}{r} 45 \\ +\ 63 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 19 + 90 ② 23 + 95 ③ 36 + 73 ④ 81 + 47

⑤ 28 + 81 ⑥ 68 + 91 ⑦ 35 + 71 ⑧ 50 + 59

(3) Yara has 53 candies. Her sister has 66 candies. How many candies do they have in total? Write the mathematical sentence and the answer.

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8-2 Vertical Addition and Subtraction (Part 2)

Point!

When the calculation results in a sum exceeding 10 in both the Ones place and the Tens place, we **carry over 1** to the next higher place.

Example **74 + 68**

Tens place | Ones place

		7	4
+		6	8

❶ Write the numbers, lining up the place values vertically.

		1	
		7	4
+		6	8
			2

❷ Calculate the Ones place.
4 + 8 = 12
Write 2 in the Ones place and carry over 1 to the Tens place.

		1	
		7	4
+		6	8
	1	4	2

❸ Calculate the Tens place.
1 + 7 + 6 = 14
Write 4 in the Tens place and carry over 1 to the Hundreds place.

74 + 68 = **142**

Warm Up

Calculate using vertical method.

(1) 28 + 93

(2) 38 + 62

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How to Solve

(1)

		1	
		2	8
+		9	3
			1

Calculate the Ones place.
8 + 3 = 11
Write 1 in the Ones place and carry over 1 to the Tens place.

		1	
		2	8
+		9	3
	1	2	1

Calculate the Tens place.
1 + 2 + 9 = 12
Write 2 in the Tens place and carry over 1 to the Hundreds place.

(2)

		1	
		3	8
+		6	2
			0

Calculate the Ones place.
8 + 2 = 10
Write 0 in the Ones place and carry over 1 to the Tens place.

		1	
		3	8
+		6	2
	1	0	0

Calculate the Tens place. 1 + 3 + 6 = 10
Write 0 in the Tens place and carry over 1 to the Hundreds place.

Try

(1) Calculate the vertical method problems.

① 37 + 94 ② 65 + 77 ③ 29 + 79 ④ 17 + 83

(2) Calculate using vertical method.

① 34 + 89 ② 55 + 85 ③ 78 + 23 ④ 69 + 34

(3) There are 48 red flowers and 59 white flowers blooming in the flower bed. How many flowers are there in total? Write the mathematical sentence and the answer.

Exercise

(1) Calculate the vertical method problems.

① 53 + 79 ② 22 + 98 ③ 25 + 78 ④ 35 + 65

(2) Calculate using vertical method.

① 19 + 92 ② 33 + 98 ③ 36 + 74 ④ 71 + 49

⑤ 28 + 92 ⑥ 68 + 82 ⑦ 26 + 74 ⑧ 54 + 47

(3) Malak read 74 pages of a book yesterday. Today, she read 56 pages. How many pages did she read in total? Write the mathematical sentence and the answer.

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8-3 Vertical Addition and Subtraction (Part 3)

Point!

In vertical subtraction like 137 − 54, when the number in the Tens place cannot be subtracted, we **take 1** from the Hundreds place and calculate.

Example **137 − 54**

Hundreds place | Tens place | Ones place

	1	3	7
−		5	4

❶ Write the numbers, lining up the place values vertically.

	1	3	7
−		5	4
			3

❷ Calculate the Ones place.
7 − 4 = 3
Write 3 in the Ones place.

	13		
	1	3	7
−		5	4
		8	3

❸ Calculate the Tens place.
3 − 5 cannot be done.
Take 1 from the Hundreds place (making 10 Tens).
13 − 5 = 8
Write 8 in the Tens place.

137 − 54 = **83**

Warm Up

Calculate using vertical method.

(1) 126 − 32

(2) 102 − 71

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How to Solve

(1)

	1	2	6
−		3	2
			4

Calculate the Ones place. 6 − 2 = 4
Write 4 in the Ones place.

	12		
	1	2	6
−		3	2
		9	4

Calculate the Tens place. **Take 1** from the Hundreds place (making 10 Tens). 12 − 3 = 9
Write 9 in the Tens place.

(2)

	1	0	2
−		7	1
			1

Calculate the Ones place. 2 − 1 = 1
Write 1 in the Ones place.

	10		
	1	0	2
−		7	1
		3	1

Calculate the Tens place. **Take 1** from the Hundreds place (making 10 Tens). 10 − 7 = 3
Write 3 in the Tens place.

Try

(1) Calculate the vertical method problems.

① 175 − 94 ② 165 − 75 ③ 109 − 70

(2) Calculate using vertical method.

① 139 − 62 ② 156 − 75 ③ 105 − 15

(3) There are 148 people on a ship. 57 people got off. How many people are on the ship now? Write the mathematical sentence and the answer.

Exercise

(1) Calculate the vertical method problems.

① 184 − 61 ② 184 − 94 ③ 104 − 60

(2) Calculate using vertical method.

① 157 − 61 ② 178 − 88 ③ 124 − 50

(3) Aya has 105 stickers. She gave her sister 42 stickers. How many stickers does Aya have left? Write the mathematical sentence and the answer.

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8-4 Vertical Addition and Subtraction (Part 4)

Point!

When the number cannot be subtracted in both the Ones place and the Tens place, we **take 1** from the next higher place and calculate.

Example 137 − 59

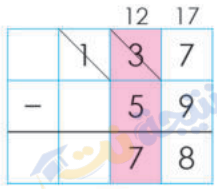
Hundreds place | Tens place | Ones place



❶ Write the numbers, lining up the place values vertically.



❷ Calculate the Ones place.
7 − 9 cannot be done.
Take 1 from the Tens place (making 10 Tens).
17 − 9 = 8
Write 8 in the Ones place.



❸ Calculate the Tens place.
2 − 5 cannot be done. Take 1 from the Hundreds place (making 10 Tens).
12 − 5 = 7
Write 7 in the Tens place.

137 − 59 = **78**

Warm Up

Calculate using vertical method.

(1) 126 − 38

(2) 120 − 27

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How to Solve

(1)

	1	2	6
−		3	8
			8

Calculate the Ones place.
6 − 8 cannot be done.
Take 1 from the Tens place.
16 − 8 = 8

	1	2	6
−		3	8
		8	8

Calculate the Tens place.
1 − 3 cannot be done.
Take 1 from the Hundreds place.
11 − 3 = 8

(2)

	1	2	0
−		2	7
			3

	1	2	0
−		2	7
		9	3

Pay close attention to expressions that involve taking in two places!



Try

(1) Calculate the vertical method problems.

① 164 − 95 ② 172 − 79 ③ 170 − 84

(2) Calculate using vertical method.

① 131 − 62 ② 136 − 37 ③ 120 − 33

(3) The total number of 1st and 2nd graders at Gamal's school is 182. There are 93 1st graders. How many 2nd graders are there? Write the mathematical sentence and the answer.

Exercise

(1) Calculate the vertical method problems.

① 161 − 72 ② 182 − 86 ③ 110 − 28

(2) Calculate using vertical method.

① 157 − 64 ② 121 − 88 ③ 172 − 99

④ 131 − 85 ⑤ 140 − 44 ⑥ 170 − 91

(3) Rania has 160 seeds. She planted 65 seeds in the soil. How many seeds are left? Write the mathematical sentence and the answer.

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8-5 Vertical Addition and Subtraction (Part 5)

Point!

In vertical subtraction like 107 − 59, when the number in the Ones place cannot be subtracted and we cannot take from the Tens place, we must first take 1 from the **Hundreds place** to the **Tens place**, and then take 1 from the **Tens place** to the **Ones place**.

Example **107 − 59**

	1	0	7
−		5	9

❶ Write the numbers, lining up the place values vertically.

		10	
	1	0	7
−		5	9

❷ Calculate the Ones place.
7 − 9 cannot be done.
The Tens place is 0, so **take 1 from the Hundreds place** (10 is moved to the Tens place).

		9 10	17
	1	0	7
−		5	9
			8

❸ Now, take 1 from the Tens place (now 10) to the Ones place.
17 − 9 = 8
The Tens place becomes 9.

		9 10	17
	1	0	7
−		5	9
		4	8

❹ Calculate the Tens place.
9 − 5 = 4
Write 4 in the Tens place.

107 − 59 = **48**

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Warm Up

Calculate 106 − 9 using vertical method.

How to Solve



Try

(1) Calculate the vertical method problems.

① $\begin{array}{r} 103 \\ -\ 75 \\ \hline \end{array}$ ② $\begin{array}{r} 100 \\ -\ 39 \\ \hline \end{array}$ ③ $\begin{array}{r} 102 \\ -\ 7 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 104 − 29 ② 100 − 46 ③ 104 − 9

(3) You have 102 sheets of colored paper. You used 35 sheets. How many sheets of colored paper are left? Write the mathematical sentence and the answer.

Exercise

(1) Calculate the vertical method problems.

① $\begin{array}{r} 102 \\ -\ 28 \\ \hline \end{array}$ ② $\begin{array}{r} 100 \\ -\ 69 \\ \hline \end{array}$ ③ $\begin{array}{r} 101 \\ -\ 8 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 107 − 69 ② 103 − 88 ③ 100 − 71

④ 104 − 5 ⑤ 100 − 4 ⑥ 100 − 6

(3) You have 100 candies. You ate 5 candies. How many candies are left? Write the mathematical sentence and the answer.

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8-6 Vertical Addition and Subtraction (Part 6)

Point!

Even when performing vertical calculation with larger numbers, you should align the place values, and then calculate starting from the **Ones place**.

Example 1 658 + 24

	6	5	8
+		2	4

		1	
	6	5	8
+		2	4
			2

		1	
	6	5	8
+		2	4
		8	2

		1	
	6	5	8
+		2	4
	6	8	2

Example 2 541 − 27

	5	4	1
−		2	7

		3	11
	5	4	1
−		2	7
			4

		3	11
	5	4	1
−		2	7
		1	4

		3	11
	5	4	1
−		2	7
	5	1	4

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Warm Up

Calculate using vertical method.

(1) 14 + 329

(2) 652 − 7

How to Solve

(1)

		1	4
+	3	2	9
			3

↓

		1	4
+	3	2	9
		4	3

↓

		1	4
+	3	2	9
	3	4	3

(2)

	6	4 5	12 2
−			7
			5

↓

	6	4 5	12 2
−			7
		4	5

↓

	6	4 5	12 2
−			7
	6	4	5

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Try

(1) Calculate the vertical method problems.

① $\begin{array}{r} 254 \\ +\ 28 \\ \hline \end{array}$

② $\begin{array}{r} 48 \\ +\ 722 \\ \hline \end{array}$

③ $\begin{array}{r} 572 \\ +\ 18 \\ \hline \end{array}$

④ $\begin{array}{r} 467 \\ -\ 38 \\ \hline \end{array}$

⑤ $\begin{array}{r} 561 \\ -\ 7 \\ \hline \end{array}$

⑥ $\begin{array}{r} 643 \\ -\ 9 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 263 + 19

② 451 + 29

③ 38 + 717

④ 357 − 28

⑤ 546 − 37

⑥ 911 − 6

(3) Yesterday, you read 65 pages of a book. Today, you read 125 pages. How many pages did you read in total? Write the mathematical sentence and the answer.

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Exercise

(1) Calculate the vertical method problems.

① $\begin{array}{r} 244 \\ +\ 28 \\ \hline \end{array}$ ② $\begin{array}{r} 35 \\ +\ 625 \\ \hline \end{array}$ ③ $\begin{array}{r} 41 \\ +\ 439 \\ \hline \end{array}$

④ $\begin{array}{r} 678 \\ -\ 29 \\ \hline \end{array}$ ⑤ $\begin{array}{r} 312 \\ -\ 8 \\ \hline \end{array}$ ⑥ $\begin{array}{r} 573 \\ -\ 5 \\ \hline \end{array}$

(2) Calculate using vertical method.

① 131 + 59 ② 643 + 68 ③ 49 + 421

④ 782 − 17 ⑤ 571 − 62 ⑥ 813 − 7

(3) A book has 137 pages in total. You read 19 pages. How many pages are left unread? Write the mathematical sentence and the answer.

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9-1 Mental Math Strategies (Part 1)

Point!

In adding numbers, the answer remains **the same** even if you change the order of the numbers being added.

Example $5 + 24 = 5 + 24$ ⟶ In both cases, the answer is **29**.

$12 + 7 + 3 = 7 + 3 + 12$ ⟶ In both cases, the answer is **22**.

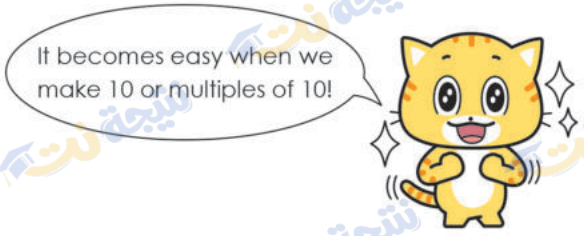
Change the order to calculate easily.

The **parentheses** ( ) in an expression indicate a group of numbers that should be calculated **first**.

$12 + (7 + 3) = 12 + 10$

Calculate first

$= 22$



Warm Up

(1) There are 4 adults and 12 children in the park. Then 8 more children arrived. Think about the total number of people. Write the parentheses ( ) in the following expressions and find the answer.

① Find the initial total number of people first.

mathematical sentence: $4 + 12 + 8$ Answer: people

② Find the total number of children first.

mathematical sentence: $4 + 12 + 8$ Answer: people

(2) Use parentheses ( ) to find a strategy for calculating **24 + 17 + 6**.

How to Solve

(1) ① mathematical sentence: $(4 + 12) + 8 = 24$ Answer: 24 people

The initial number of people

② mathematical sentence: $4 + (12 + 8) = 24$ Answer: 24 people

The total number of children

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(2) 24 + 17 + 6 = (24 + 6) + 17
= 30 + 17
= 47

Change the order of addition to make 30 first, and then calculate, it's easy.

Try

(1) There are 9 boys and 15 girls in the park. Then 5 more girls arrived. Think about the total number of people. Write the parentheses ( ) in the following expressions and find the answer.

① Find the initial total number of people first.

mathematical sentence: 9 + 15 + 5 Answer: people

② Find the total number of girls first.

mathematical sentence: 9 + 15 + 5 Answer: people

(2) Use parentheses ( ) to find a strategy for calculating the following.

① 8 + 16 + 4 ② 21 + 16 + 9

Exercise

(1) Write the missing number in the box.

① (9 + 14) + 16 = ☐ + 16
= ☐

② 9 + (14 + 16) = 9 + ☐
= ☐

(2) 8 1st graders and 13 2nd graders are playing in the schoolyard. Then 7 more 2nd graders arrived. Think about the total number of students. Write the parentheses ( ) in the following expressions and find the answer.

① Find the initial total number of students first.

mathematical sentence: 8 + 13 + 7 Answer: students

② Find the total number of 2nd graders.

mathematical sentence: 8 + 13 + 7 Answer: students

(3) Use parentheses ( ) to find a strategy for calculating the following.

① 6 + 17 + 13 ② 3 + 28 + 7

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9-2 Mental Math Strategies (Part 2)

Point!

- In addition, **splitting the numbers** before calculation makes it easy.
- In subtraction, **splitting the numbers** before calculation makes it easy.

Example 1 **37 + 9**

Splitting the Summand (37)	Splitting the Addend (9)
37 + 9 30 7	37 + 9 3 6
❶ 7 + 9 = 16	❶ 37 + 3 = 40
❷ 30 + 16 = 46	❷ 40 + 6 = 46

Dividing numbers to make a multiple of ten.

Calculating to make a multiple of ten.

Example 2 **73 − 8**

Splitting the Minuend (73)	Splitting the Subtrahend (8)
73 − 8 60 13	73 − 8 3 5
❶ 13 − 8 = 5	❶ 73 − 3 = 70
❷ 60 + 5 = 65	❷ 70 − 5 = 65

Warm Up

Calculate using clever ways.

(1) 28 + 6

(2) 45 − 8

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How to Solve

(1) 28 + 6 = 34

You may use either method to think about the calculation.

28 + 6	28 + 6
20 8	2 4
❶ 8 + 6 = 14	❶ 28 + 2 = 30
❷ 20 + 14 = 34	❷ 30 + 4 = 34

(2) 45 − 8 = 37

45 − 8	45 − 8
30 15	5 3
❶ 15 − 8 = 7	❶ 45 − 5 = 40
❷ 30 + 7 = 37	❷ 40 − 3 = 37

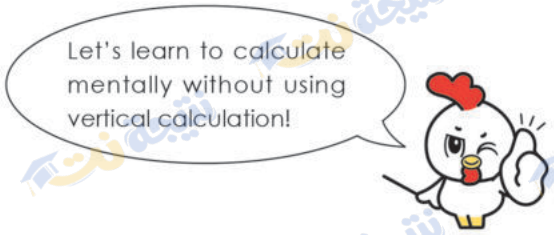
Try

(1) Calculate using clever ways.

① 18 + 8 ② 39 + 7 ③ 6 + 46

④ 22 − 6 ⑤ 47 − 9 ⑥ 92 − 5

(2) 37 people were on the bus. 8 more people got on at a stop. How many people are on the bus now? Write the mathematical sentence and the answer.



Exercise

(1) Calculate using clever ways.

① 16 + 9 ② 48 + 6 ③ 74 + 8

④ 8 + 65 ⑤ 6 + 66 ⑥ 5 + 39

⑦ 26 − 8 ⑧ 36 − 9 ⑨ 62 − 5

⑩ 53 − 7 ⑪ 81 − 6 ⑫ 70 − 7

(2) 45 people were on the bus. 9 people got off at a stop. How many people are on the bus now? Write the mathematical sentence and the answer.

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Notes

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Notes

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