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Numbers Greater than a Hundred Million

How to Express Numbers (1)

Instruction

Above the Ten Millions Place, there are the “Hundred Millions Place,” “One Billions Place,” “Ten Billions Place,” and “Hundred Billions Place”.

	Billions			Millions			Thousands			Hundreds	Tens	Ones
	Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One			
100 million				1	0	0	0	0	0	0	0	0
1 billion			1	0	0	0	0	0	0	0	0	0
10 billion		1	0	0	0	0	0	0	0	0	0	0
100 billion	1	0	0	0	0	0	0	0	0	0	0	0

For example, 7676965000* can be read as “seven billion, six hundred seventy-six million, nine hundred sixty-five thousand.”
(*World population, 2021)

Example

Write the following number in the table and read it.
4 | 65 | 32000* <tons> (*World crude oil production, 2020)

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		4	1	6	5	1	3	2	0	0	0

Four billion, one hundred sixty-five million, one hundred thirty-two thousand.

Write the following numbers in the table and read it.

1 4006737000*

<tons>

(*World oil consumption, 2020)

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		4	0	0	6	7	3	7	0	0	0

2 13497299000*

<ha>

(*World land area, 2019)

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
	1	3	4	9	7	2	9	9	0	0	0

1 - 2

Numbers Greater than a Hundred Million

How to Express Numbers (2)

Example The following number represents the world population (2021). Write the number in the table and read it.

In many countries, the comma (,) or space are added every three digits to make it easier to read, like 7,676,965,000 or 7 676 965 000.



7676965000

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		7	6	7	6	9	6	5	0	0	0
Seven billion, six hundred seventy-six million, nine hundred sixty-five thousand.											

The following numbers show the population of countries with the largest population in the world (2021). Write the numbers in the table and read them.

- 1 China 1439300000 <people>
- 2 India 1380000000 <people>
- 3 America 331000000 <people>
- 4 Indonesia 223510000 <people>
- 5 Pakistan 220920000 <people>
- 6 Brazil 212600000 <people>

	Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
	Billions			Millions			Thousands					
1 China			1	4	3	9	3	0	0	0	0	0
2 India			1	3	8	0	0	0	0	0	0	0
3 America				3	3	1	0	0	0	0	0	0
4 Indonesia				2	2	3	5	1	0	0	0	0
5 Pakistan				2	2	0	9	2	0	0	0	0
6 Brazil				2	1	2	6	0	0	0	0	0

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Numbers Greater than a Hundred Million

How to Express Numbers (3)

Example Write the following number in numerals in the table.

One billion, seventy-nine million, two hundred fifty-two thousand, eight hundred eighty*. <km> (*The distance light travels in one second)

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		1	0	7	9	2	5	2	8	8	0

Write the following numbers in numerals.

- 1 Two hundred sixty-one million, two hundred thousand* <people>
(*The population of Nigeria is the 7th largest population in the world, 2021)

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
			2	6	1	2	0	0	0	0	0

- 2 Eight billion, two hundred eighty-three million, three hundred thousand* <people> (*Number of mobile phone subscribers worldwide, 2021)

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		8	2	8	3	3	0	0	0	0	0

- 3 One billion, six hundred fifty-three million, one hundred thousand* <km> (*The estimated distance between the Earth and Saturn)

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		1	6	5	3	1	0	0	0	0	0

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Numbers Greater than a Hundred Million

Structure of Large Numbers (1)

Example Write the numbers in the .

Focus on each individual number. Otherwise, there could be many answers.



1 240000000 is made of hundred millions and ten millions.

2 is made of 3 one billions, 4 hundred millions, 5 ten millions, seven one millions.

Write the numbers in the .

Focus on each individual number. Otherwise, there could be many answers.



1 453000000 is made of hundred millions, ten millions, and one millions.

2 6520700000 is made of one billions, hundred millions, ten millions and hundred thousands.

3 32568000000 is made of ten billions, one billions, hundred millions, ten millions and one millions.

4 is 8 one billions, 2 hundred millions and 6 one millions.

5 is 2 ten billions, 4 one billions, 5 hundred millions, 6 ten millions and 7 ten thousands.

6 is 7 hundred billions, 2 ten billions, 2 hundred millions and 5 one millions.



You need to look at the table on the right to solve those problems.

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					

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Numbers Greater than a Hundred Million

Structure of Large Numbers (2)

Instruction

It is possible to tell the structure of large numbers by their main units, such as “billions,” “millions,” and “thousands.”

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		3	4	5	7	0	0	0	0	0	0

For example, the number above is made of 3 one billions, 4 hundred millions, 5 ten millions and 7 one millions.

We can also say that the number is made of 3 one billions and 457 one millions or 3457 one millions

Example

Write the numbers in the .

1 240000000 is made of ten millions.

2 is made of 3457 one millions.

Write the numbers in the .

1 453000000 is made of one millions.

2 6520700000 is made of one billions and one millions and one thousands.

3 32568000000 is made of one billions and one millions.

4 is 8 one billions and 206 one millions.

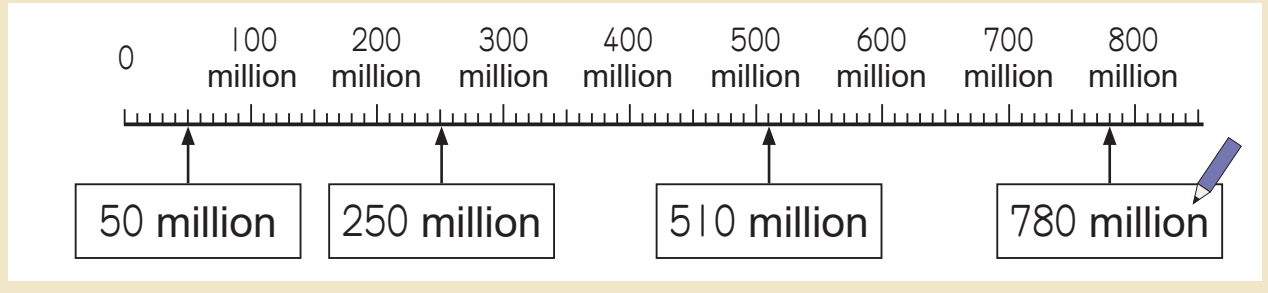
5 is 720 one billions and 205 one millions.

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Numbers Greater than a Hundred Million

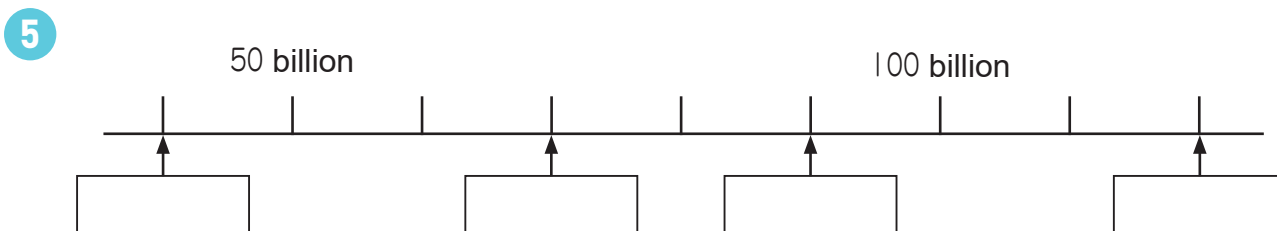
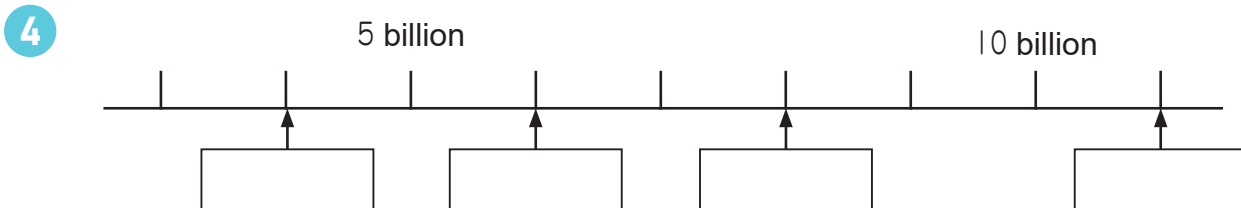
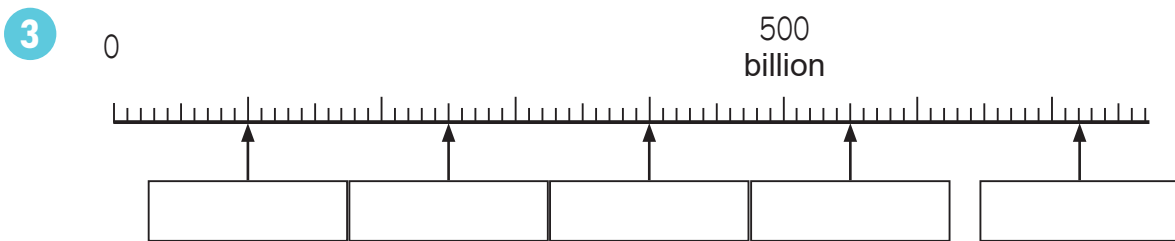
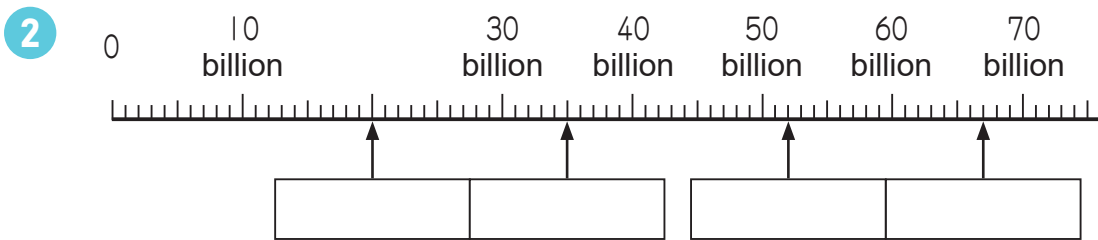
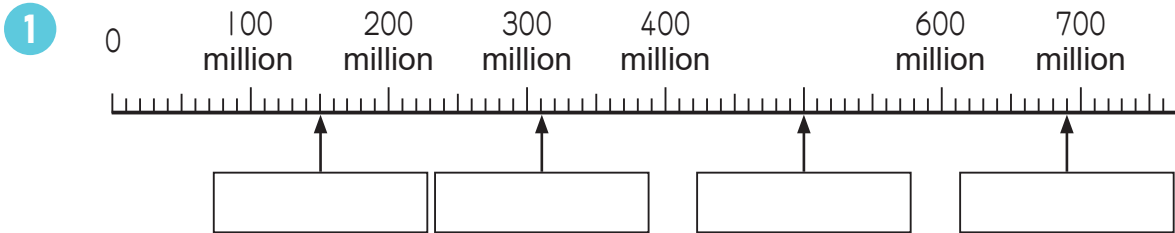
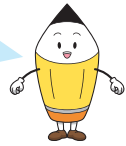
Number Line

Example Write the numbers in the .



Write the numbers in the .

How much does the smallest tick mark show?



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Numbers Greater than a Hundred Million

Structure of Whole Numbers (1)

Example What is 10 times as much as two billion, five hundred million? Then, what is 10 times as much as that number? Read these numbers.

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		2	5	0	0	0	0	0	0	0	0
	2	5	0	0	0	0	0	0	0	0	0
2	5	0	0	0	0	0	0	0	0	0	0

100 times (from 2 billion to 200 million)
10 times (from 200 million to 2 billion)
10 times (from 2 billion to 20 billion)

10 times the number

Twenty-five billion

100 times the number

Two hundred fifty billion

When a whole number is increased 10 times as much, its **digits move up (to the left) one place.**

Write the following number, the number multiplied by 10 and the number multiplied by 100 in the table. Read them.

1 Six billion, seven hundred eighty-nine million

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
Original											
10 times											
100 times											

10 times the number

100 times the number

2 Three hundred four million, five hundred thousand

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
Original											
10 times											
100 times											

10 times the number

100 times the number

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Numbers Greater than a Hundred Million

Structure of Whole Numbers (2)

Example What is two billion, five hundred million multiplied by $\frac{1}{10}$?

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
			2	5	0	0	0	0	0	0	0
		2	5	0	0	0	0	0	0	0	0
	2	5	0	0	0	0	0	0	0	0	0

Annotations: A blue pencil points to the 'Ones' column. A red arrow labeled $\frac{1}{10}$ times points from the 'Ones' column to the 'Tens' column. Another red arrow labeled 10 times points from the 'Ones' column to the 'Hundreds' column.



When a whole number is multiplied by 10, its digits move up and to the left one place.

When a whole number is multiplied by $\frac{1}{10}$, its digits move down and to the right one place.

Using the chart, multiply each whole number by 10 and $\frac{1}{10}$.

1 6352000000

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		6	3	5	2	0	0	0	0	0	0

Annotations: A red arrow labeled $\frac{1}{10}$ times points from the 'Ones' column to the 'Tens' column. A red arrow labeled 10 times points from the 'Ones' column to the 'Hundreds' column.

2 3170256000

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		3	1	7	0	2	5	6	0	0	0

Annotations: A red arrow labeled $\frac{1}{10}$ times points from the 'Ones' column to the 'Tens' column. A red arrow labeled 10 times points from the 'Ones' column to the 'Hundreds' column.

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Numbers Greater than a Hundred Million

Structure of Whole Numbers (3)

Example Write the following numbers.

1 What is 6 billion times 10?

60 billion

2 What is 23 billion times $\frac{1}{10}$?

2 billion 3 hundred million

Write the following numbers.

Be careful about the units for some problems below.



1 What is 3 billion times 10?

2 What is 28 billion times 10?

3 What is 37 billion times 10?

4 What is 150 million times 10?

5 What is 823 million times 10?

6 What is 50 billion times $\frac{1}{10}$?

7 What is 7 billion times $\frac{1}{10}$?

8 What is 300 million times $\frac{1}{10}$?

9 What is 2 million times $\frac{1}{10}$?

1 - 10

Numbers Greater than a Hundred Million

Comparing Numbers

Example Compare the following two numbers and write the appropriate sign ($<$ or $>$) in the .



It becomes easier when you write the numbers in the table below.

253946000 1200345602

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
			2	5	3	9	4	6	0	0	0
		1	2	0	0	3	4	5	6	0	2

Compare the following two numbers and write the appropriate sign ($<$ or $>$) in the .

1 562130000

4621300000

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					

2 645398720

75239999

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					

3 3219865000

3569865000

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					

4 678100863645

79921034002

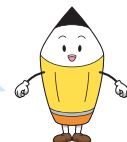
5 10388584982

103885849821

6 340670890000

2406708900000

Pay attention to how many digits are there in each numbers.



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Numbers Greater than a Hundred Million

Multiplication of Large Numbers (1)

Example

We played a game of choosing 6 out of 10 cards from 0 to 9 to make two 3-digit numbers, multiplying these numbers and finding the answer. And we made the numbers 356 and 478.

3	5	6
4	7	8

	Hundred Thousands	Ten Thousands	One Thousands	Hundreds	Tens	Ones
×				3	5	6
				4	7	8
<hr/>						
			2	8	4	8

$356 \times 8 = 2848$

Line up the numbers vertically in each place.

This seems difficult.

However, it can be done by using previous knowledge. That "+" is not necessarily written.



	Hundred Thousands	Ten Thousands	One Thousands	Hundreds	Tens	Ones
×				3	5	6
				4	7	8
<hr/>						
			2	8	4	8
			2	4	9	2

$356 \times 70 = 24920$

$$356 \times 8 = 2848$$

$$356 \times 7 = 2492$$

(This is actually $356 \times 70 = 24920$)

	Hundred Thousands	Ten Thousands	One Thousands	Hundreds	Tens	Ones
×				3	5	6
				4	7	8
<hr/>						
			2	8	4	8
			2	4	9	2
+	1	4	2	4	0	0

$356 \times 400 = 142400$

$$356 \times 4 = 1424$$

(This is actually $356 \times 400 = 142400$)

Do the addition.

$$2848 + 24920 + 142400 = 170168$$

$$356 \times 478 = 170168$$

In the above game, we made the following numbers. Write the correct numbers in the .

1

5	8	2
---	---	---

3	4	9
---	---	---

	Hundred Thousands	Ten Thousands	One Thousands	Hundreds	Tens	Ones
×				5	8	2
				3	4	9
<hr/>						
			<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	0
+	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	0	0
<hr/>						
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

2

6	2	0
---	---	---

8	5	3
---	---	---

	Hundred Thousands	Ten Thousands	One Thousands	Hundreds	Tens	Ones
×				6	2	0
				8	5	3
<hr/>						
			<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	0
+	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	0	0
<hr/>						
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Numbers Greater than a Hundred Million

Multiplication of Large Numbers (2)

Example 1

In the previous game, we made the numbers 542 and 307. How can we calculate 542×307 ?

5 4 2 3 0 7

	Hundred Thousands	Ten Thousands	One Thousands	Hundreds	Tens	Ones
×				5	4	2
				3	0	7
<hr/>						
			3	7	9	4
		0	0	0	0	0
	1	6	2	6	0	0
<hr/>						
+	1	6	6	3	9	4

Line up the numbers vertically in each place.

$$542 \times 7 = 3794$$

$$542 \times 0 = 0$$

(There is no problem if you do not write this calculation.)

$$542 \times 3 = 1626$$

(This is actually $542 \times 300 = 162600$)

Do the addition.

$$3794 + 0 + 162600 = 166394$$

$$542 \times 307 = 166394$$

1 In that game, we made the numbers 937 and 204, and the numbers 789 and 506. Calculate 937×204 and 789×506 .

1 $937 \times 204 = \square$

2 $789 \times 506 = \square$

Example 2

Think about how to calculate 5400×320 .

×			5	4	0	0
			3	2	0	
<hr/>						
		1	0	8		
		1	6	2		
<hr/>						
+	1	7	2	8	0	0

$$\begin{aligned} 5400 \times 320 &= 54 \times 100 \times 32 \times 10 \\ &= 54 \times 32 \times 100 \times 10 \\ &= 54 \times 32 \times 1000 \\ &= 1728 \times 1000 \\ &= 1728000 \end{aligned}$$

			5	4
×			3	2
<hr/>				
		1	0	8
	1	6	2	
<hr/>				
+	1	7	2	8

Multiplication of numbers with 0 at the end is calculated by omitting 0. After calculation, 0 is added to the right of the product by the number of 0's omitted.

2 Calculate the following multiplication problems by using the algorithm.

1 $4800 \times 630 = \square$

2 $9400 \times 870 = \square$

1 - 13

Numbers Greater than a Hundred Million

Review

1 Write the following number in the table and read it.

2978982000

<tones>

(World grain production, 2019)

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		2	9	7	8	9	8	2	0	0	0

2 Write the following numbers in the numerals in the table.

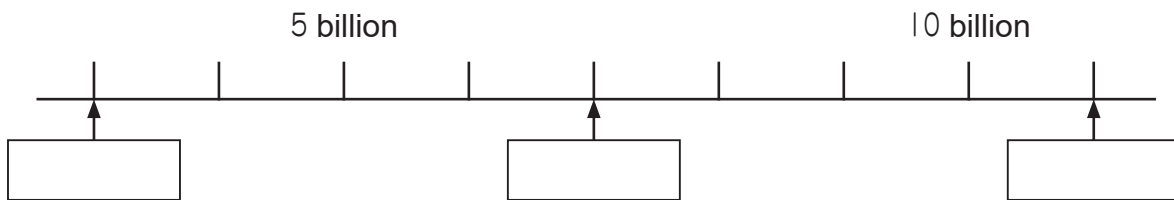
One billion, seven hundred nine million, eight hundred twenty-five thousand.

<ha>

(Russia's land area, the largest land area in the world, 2019)

Hundred	Ten	One	Hundred	Ten	One	Hundred	Ten	One	Hundreds	Tens	Ones
Billions			Millions			Thousands					
		1	7	0	9	8	2	5	0	0	0

3 Write the numbers in the .



4 Answer the following questions.

1 What is 560 million times 10?

2 What is 7 billion times $\frac{1}{10}$?

5 Compare the following two numbers and write the appropriate sign (< or >) in the .

1 230569000 1120569000

2 1000000000 999999999

6 Calculate the following multiplication problems by using the algorithm.

1 $135 \times 709 =$

2 $5900 \times 280 =$