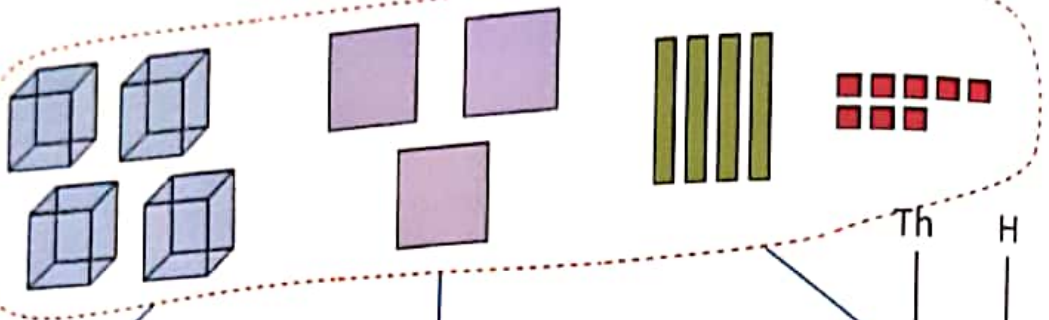


Large numbers

Check What I Know

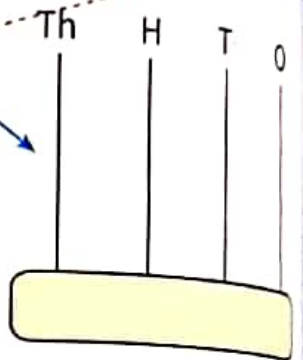
1. Write the number and number name. Then show it on the abacus.

a)

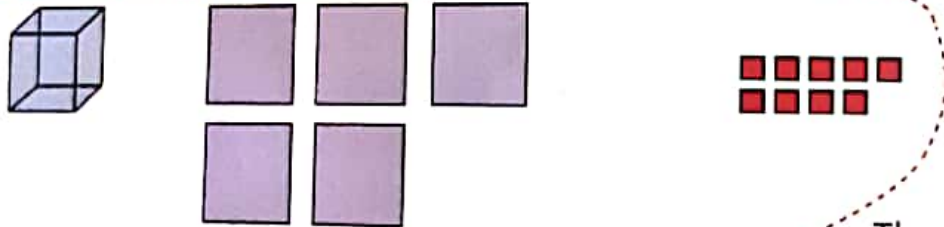


Number

Number name

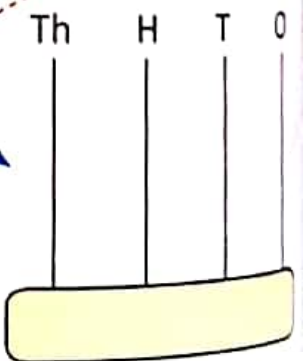


b)



Number

Number name



2. Write the expanded form in figures.

a) $5674 = 5000 + \underline{\quad} + \underline{\quad} + \underline{\quad}$

b) $7083 = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

3. Arrange in ascending order.

a) 2963, 1235, 3582, 899



b) 8466, 6488, 8521, 8644



4. Arrange in descending order.

a) 8052, 8502, 8520, 852



b) 6628, 8266, 6286, 6826



5. Use the digits to make the smallest and the greatest 4-digit numbers.

Smallest

Greatest

a) 7, 8, 4, 9

b) 5, 0, 2, 6

6. What is the place value and face value of:

Place value

Face value

a) 5 in 5432

b) 0 in 8079



7. Answer the questions.

a) What is 1000 more than 5683? _____

b) Which is the largest 4-digit number? _____

c) What is the difference between the largest 3-digit number and the smallest 4-digit number? _____

d) What is 100 less than 6789? _____

e) By how many times does the value of 6 go up when it moves to the left by 1 digit?

5-digit numbers

When Rita was in Class 3, she had a collection of 999 stamps.



999 is the largest 3-digit number.

Now Rita is in Class 4. Her stamp collection has grown to 9999 stamps.

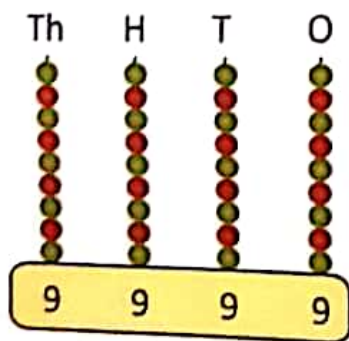


9999 is the largest 4-digit number.

10000 is a 5-digit number. It is read as **ten thousand**.

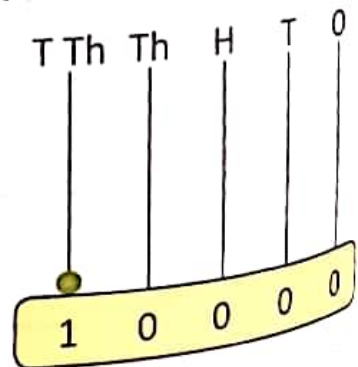
To write a 5-digit number, we need a new place value. The new place value is the **ten thousands** place (T Th).

9999 is shown on the abacus as:



+ 1 =

10000 is shown on the abacus as:



Her mother then gave her 1 more stamp. She had $999 + 1 = 1000$ stamps.



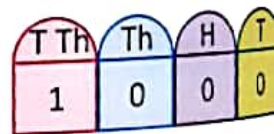
1000 is the smallest 4-digit number.

Her father gave her 1 more stamp. How many stamps does she have now?

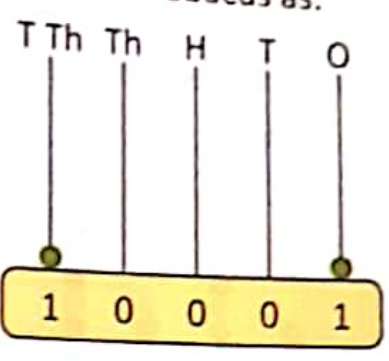


Now Rita has $9999 + 1 = 10000$ stamps.

10000 is the smallest 5-digit number.

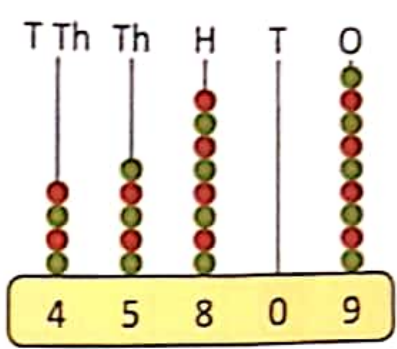


Ten Thousands (TTh)	Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
1	0	0	0	0



The number 45809 consists of 4 ten thousands, 5 thousands, 8 hundreds, 0 tens and 9 ones. It is shown as:

TTh	Th	H	T	O
4	5	8	0	9



ones and thousands periods

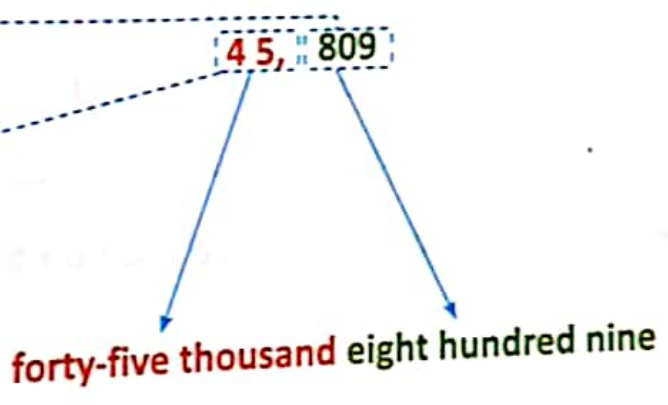
To make it easy to read large numbers, the digits are divided into periods. The digits in the same period are read together.

The **ones, tens, and hundreds** digits form the ones period.

The **thousands and ten thousands** digits form the thousands period.

Two periods are separated by a comma.

The number 45,809 is read as:



Place value and place value

The number 48,276:

Place value of 4 is 4. Place value of 4 is

$$4 \times 10,000 = 40,000$$

Place value of 8 is 8. Place value of 8 is $8 \times 1000 = 8000$.

Place value of 2 is 2. Place value of 2 is $2 \times 100 = 200$.

Place value of 7 is 7. Place value of 7 is $7 \times 10 = 70$.

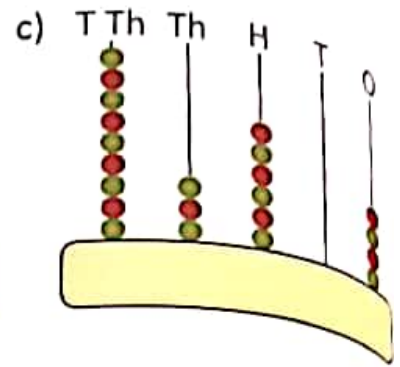
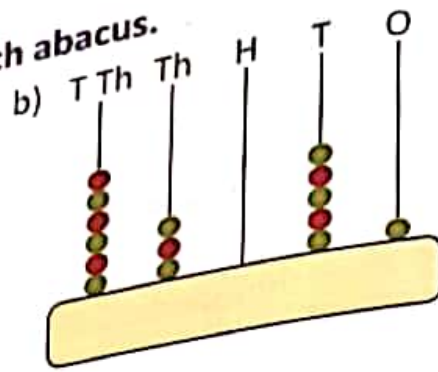
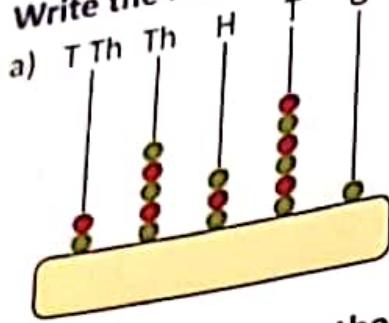
Place value of 6 is 6. Place value of 6 is $6 \times 1 = 6$.

Therefore in the expanded form, $48,276 = 40,000 + 8000 + 200 + 70 + 6$

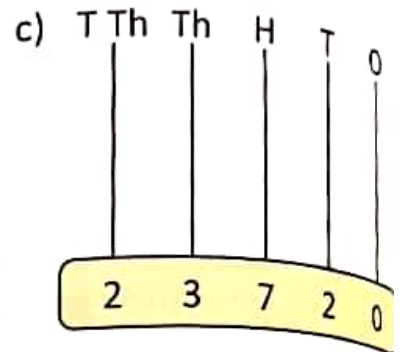
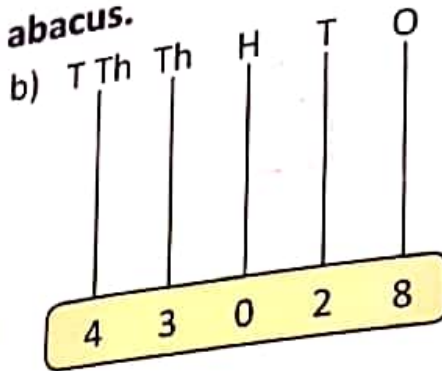
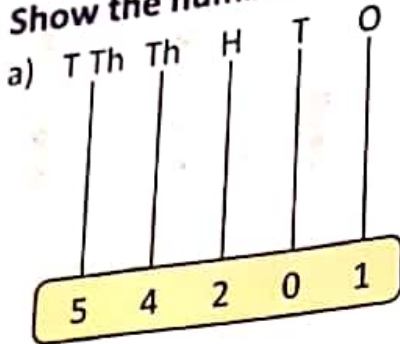
Thousands period		Ones period		
TTh	Th	H	T	O
4	8	2	7	6

EXERCISE 1

1. Write the number on each abacus.



2. Show the number on the abacus.



3. Write the number for the number name. Put the comma in the right place.

a) Ninety-one thousand four hundred seventy-five _____

b) Thirty-three thousand three hundred three _____

c) Eleven thousand ninety-one _____

4. Read the number and write the number name.

a) 84,290: _____

b) 29,354: _____

c) 60,032: _____

5. Write down the following.

a) Greatest 5-digit number: _____

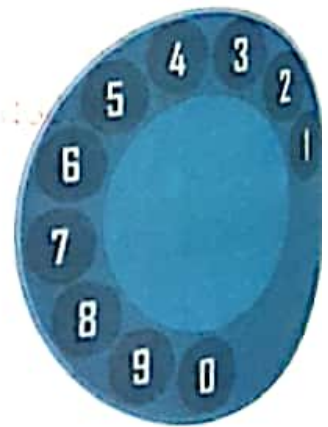
b) Smallest 5-digit number: _____

c) 3 thousand more than 10,010: _____

d) 6 thousand less than 43,102: _____

e) Ten thousand more than 12,345: _____

f) The expanded form of 38,709: _____



6-digit numbers

You know that:

The greatest 4-digit number is 9999.

$$9999 + 1 = 10,000$$

10,000 is the smallest 5-digit number.

The greatest 5-digit number is 99,999.

$$99999 + 1 = 100000$$

Lakhs form a separate period. Therefore 100000 is written as 1,00,000.

The place value chart for 1,00,000 is:

100000 is the smallest 6-digit number. It is read as one hundred thousand or 1 lakh.



Lakhs period	Thousands period		Ones period		
Lakhs	Ten thousands	Thousands	Hundreds	Tens	Ones
1	0	0	0	0	0

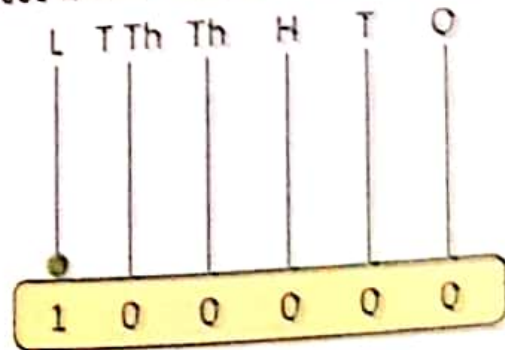
423789 is written as:

4,23,789

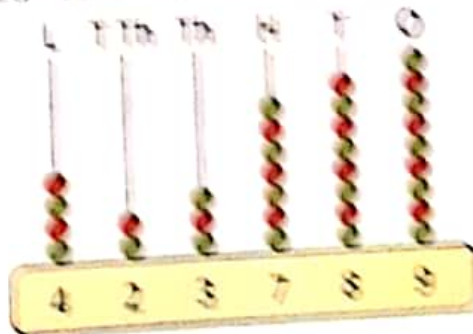
It is read as: **Four lakh** **twenty-three thousand** seven hundred eighty-nine

To show 6-digit numbers on an abacus, a sixth spike is needed. This is the lakhs spike.

1,00,000 is shown on the abacus as:



4,23,789 is shown on the abacus as:



In 4,23,789 the **place value** of:

4 is $4 \times 1,00,000 = 4,00,000$

2 is $2 \times 10,000 = 20,000$

3 is $3 \times 1000 = 3000$

7 is $7 \times 100 = 700$

8 is $8 \times 10 = 80$

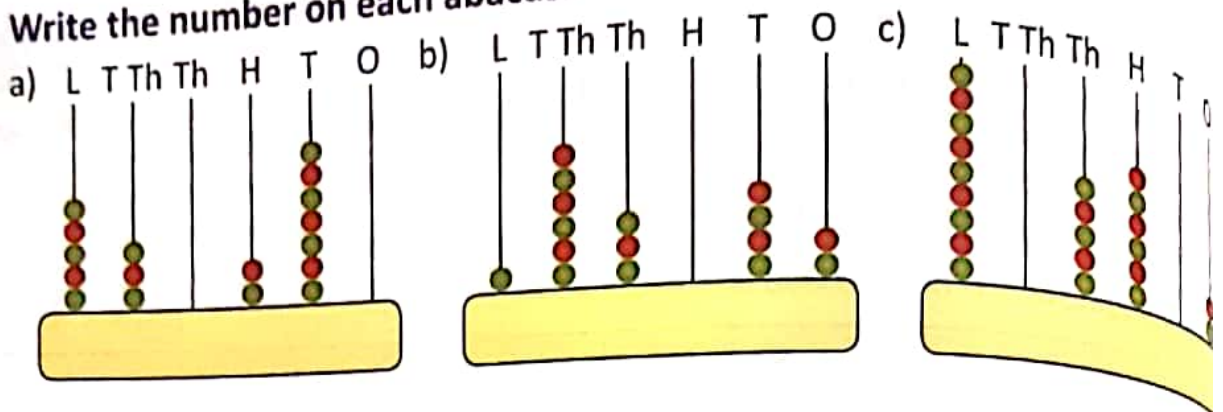
9 is $9 \times 1 = 9$

Lakhs period	Thousands period		Ones period		
Lakhs	Ten thousands	Thousands	Hundreds	Tens	Ones
4	2	3	7	8	9

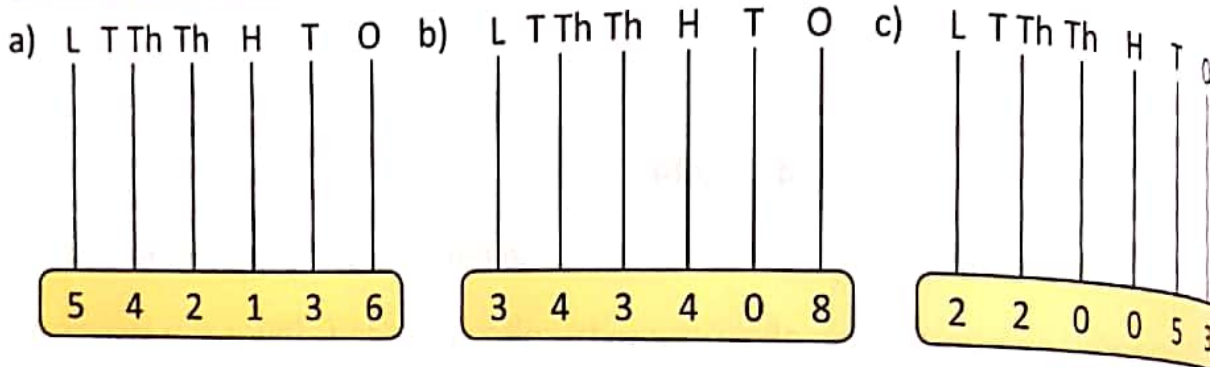
Therefore 4,23,789 in the expanded form is:
 $4,23,789 = 4,00,000 + 20,000 + 3000 + 700 + 80 + 9$

EXERCISE 2

1. Write the number on each abacus.



2. Show the number on the abacus.



3. Write the number for the number name. Put the comma in the right place.

- a) Six lakh forty-five thousand three hundred twenty: _____
- b) Two lakh ninety thousand one hundred one: _____
- c) Four lakh eleven: _____

4. Read the number and write the number name.

- a) 6,28,732: _____
- b) 5,80,210: _____
- c) 4,41,063: _____

5. Write down the following.

- a) Greatest 6-digit number: _____
- b) Smallest 6-digit number: _____
- c) 3 lakhs more than 4,10,010: _____
- d) 60 thousand less than 5,63,102: _____

- e) Ten thousand more than 7,12,345: _____
 f) Expanded form of 9,54,073: _____

Comparing numbers

A public library in Ernakulam has 75,430 books. A public library in Chennai has 1,45,498 books. Which library has more books?
 To answer this question you have to find which number is greater—75,430 or 1,45,498.



Comparing numbers with different number of digits

The number with more digits is always greater.
 Therefore $1,45,498 > 75,430$
 The Chennai library has more books than the Ernakulam library.

Comparing numbers with same number of digits

1. First compare the lakhs digits.

$$5,39,468 > 4,28,972$$

as $5 > 4$

2. If the lakhs digits are the same, compare the ten thousands digits.

$$7,67,329 < 7,89,900$$

as $6 < 8$

3. If the lakhs and ten thousands digits are the same, compare the thousands digits.

$$8,49,603 > 8,47,782$$

as $9 > 7$

4. Continue in this way—moving to the right, digit by digit, until you find two digits that are different. See the examples below.

$$7,53,639 > 7,53,036$$

as $6 > 0$

$$6,28,349 < 6,28,383$$

as $4 < 8$

$$5,34,348 > 5,34,343$$

as $8 > 3$

Ascending and descending order

Arranging numbers in **ascending order** means arranging them in increasing order—that is from the smallest to the greatest.

Example 1:

Arrange in ascending order: 23,675 3456 60,000 8432

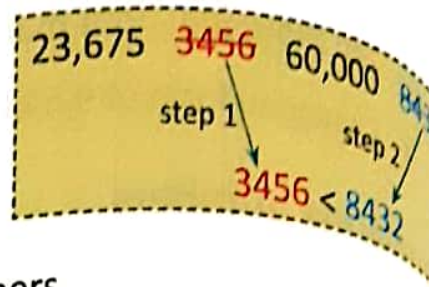
Step 1: Find the **smallest number** and write it as the first number. Cancel it from the list.

Step 2: In the remaining numbers, find the **smallest**, and write it next. Cancel it from the list.

Continue in this way till you have written down all numbers.

Rapid check

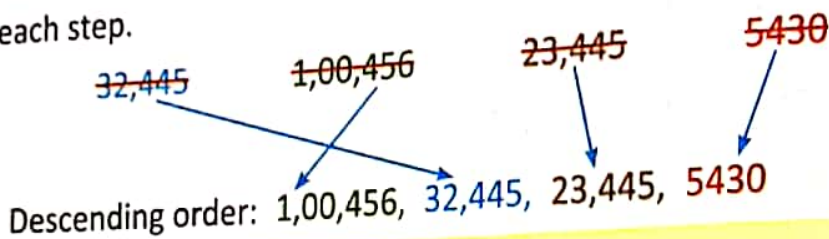
Write 4567 7654 1,12,345 and 21,543 in ascending order.



Arranging numbers in **descending order** means arranging them in decreasing order—that is from the greatest to the smallest.

Example 2: Arrange in descending order: 5430 32,445 1,00,456 23,445

The method is the same, but in this case you have to find the **greatest number** in each step.



Rapid check

Write 12,345 10,359 9999 and 1,00,003 in descending order.



EXERCISE 3

1. Fill in the correct symbol < or >.

- a) 84,026 ○ 32,001 b) 64,332 ○ 86,331 c) 1,95,422 ○ 95,099
d) 3,56,780 ○ 3,56,790 e) 2,48,291 ○ 2,48,270 f) 5,87,009 ○ 5,77,897

2. Ring the greatest number in each.

- a) 23,596 33,496 22,996 c) 20,182 9876 1,20,001
d) 53,138 53,238 53,088 e) 4,67,143 4,68,122 4,68,222

3. Ring the smallest number in each.

- a) 4355 44,355 4495 c) 1,16,433 21,643 12,346
d) 67,789 67,879 67,979 e) 5,60,000 5,61,000 99,999

4. Arrange in ascending order.

- a) 53,217 53,211 55,600 45,301

b) 47,520 9760 52,497 1,00,000 _____
c) 1,21,050 1,12,500 5,10,211 1,02,570 _____

5. Arrange in descending order.

a) 26,566 26,600 27,560 3,27,400 _____

b) 50,329 59,329 59,530 5,59,530 _____

c) 3,41,956 9,56,432 3,14,566 9,65,432 _____

Building greatest and smallest number

Without repeating digits

You are given these number cards: **4 6 3 0 8**

You can build many 5-digit numbers by arranging them in different ways.

Some examples are:

6 3 0 4 8 **3 8 0 4 6** **8 6 4 3 0** **3 4 6 8 0**

Think! How will you build the **greatest 5-digit number** from the digits?



Simple! Arrange the digits in **descending order**: **8 6 4 3 0**

How will you build the **smallest 5-digit number** from these digits?

Arrange the digits in **ascending order**. But remember, the number cannot begin with 0.

You cannot write 03468 because $03468 = 3468$ which is a 4-digit number.

So the smallest 5-digit number is **3 0 4 6 8**.

With repeating digits

You are given the digits 1, 5, 6.

Make the **greatest 5-digit number** with these digits; digits may be repeated.

Arrange the digits in **descending order**, and repeat the largest digit as many times as necessary. So the number is: 66,651

Make the **smallest number** with these digits, arrange them in **ascending order** and repeat the smallest digit as many times as necessary. So the number is: 11,156

EXERCISE 4

1. Build the greatest and the smallest numbers with these digits, without repeating the digits.

Digits	Number of digits	Greatest number	Smallest number
a) 4, 3, 1, 7	4		
b) 5, 3, 2, 1, 4	5		
c) 3, 0, 6, 1, 8, 7	6		
d) 0, 2, 7, 5, 6, 9	6		

2. Build the greatest and the smallest numbers with these digits, by repeating digits as required.

Digits	Greatest 5-digit number	Smallest 5-digit number	Greatest 6-digit number	Smallest 6-digit number
a) 3, 1, 7				
b) 2, 8, 4				
c) 7, 0, 6, 3				
d) 0, 2, 7, 5				

Rounding numbers

A newspaper headline says:

1500 people affected by floods

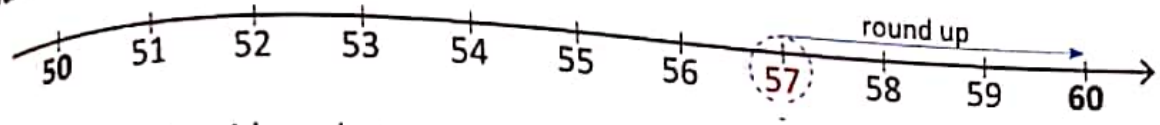
Do you think exactly 1500 people were affected?

The actual number affected may have been 1482 or 1537. What the headline means is that the number is *close to 1500*. We say that the actual number has been **rounded off to 1500**.

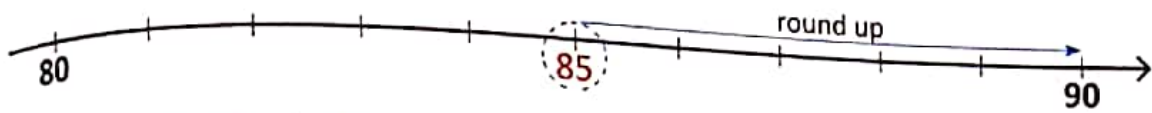
Rounding to the nearest 10

To round a number, say 57, to the nearest 10:

Find the tens between which the number lies; 57 lies between 50 and 60.
 Find which ten the number is closer to; 57 is closer to 60 than 50, so it is rounded up to 60.

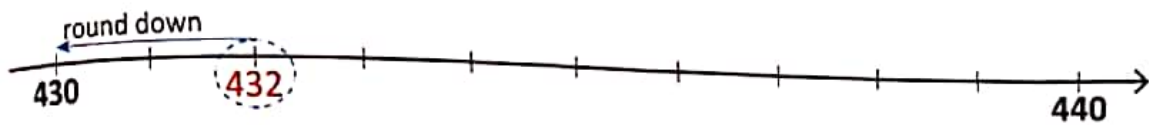


If the number is midway between the two tens it is rounded up—
 for example 85 is rounded up to 90.



Example 1: Round off i. 432 and ii. 2655 to the nearest 10.

i. 432 lies between 430 and 440. It is closer to 430. Therefore it is rounded down to 430.

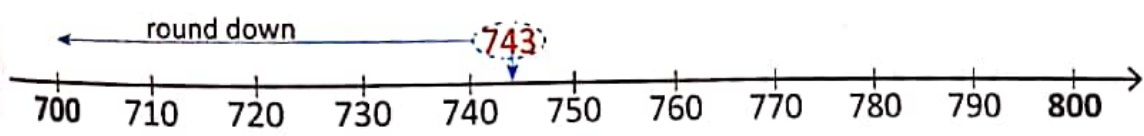


ii. 2655 lies midway between 2650 and 2660. Therefore it is rounded up to 2660.

Rounding to the nearest 100

To round off a number, say 743, to the nearest 100:

1. Find the hundreds between which the number lies; 743 lies between 700 and 800.
2. Find which hundred the number is closer to; 743 is closer to 700 than 800, so it is rounded down to 700.



3. If the number is midway between the two hundreds it is rounded up. For example 450 is rounded up to 500.



Example 2: Round off i. 472 and ii. 2750 to the nearest 100.

i. 472 lies between 400 and 500.

It is closer to 500. Therefore it is rounded up to 500.

ii. 2750 lies midway between 2700 and 2800. Therefore it is rounded up to 2800.

Rounding to the nearest 1000

- To round off a number, say 4650, to the nearest 1000:
1. Find the thousands between which the number lies; 4650 lies between 4000 and 5000.
 2. Find which thousand the number is closer to; 4650 is closer to 5000 than 4000, so it is **rounded up** to 5000.
 3. If the number is midway between the two thousands it is rounded up. For example, 9500 is **rounded up** to 10,000.

Example 3: Round off i. 6470 and ii. 22,500 to the nearest 1000.

- i. 6470 lies between 6000 and 7000. It is closer to 6000. Therefore it is **rounded down** to 6000.
- ii. 22,500 lies midway between 22,000 and 23,000. Therefore it is **rounded up** to 23,000.

EXERCISE 5

1. Round off to the nearest 10.

a) 32

b) 67

c) 452

d) 85

e) 114

b) 966

c) 2456

d) 23,450

2. Round off to the nearest 100.

a) 754

b) 8638

c) 9772

d) 49

e) 150

f) 45,813

g) 27,390

h) 99

3. Round off to the nearest 1000.

a) 4892

b) 67,101

c) 499

d) 93,228

e) 5499

f) 2,69,859

g) 5,77,645

h) 999

4. You want to take sweets for your class on your birthday. There are 46 children in your class. How many sweets will you take, rounded to the nearest 10?
5. Latha's class has 42 children. She rounds off to the nearest 10 and takes 40 sweets to class on her birthday. Did she do the right thing? Why? What should she have done?
6. A newspaper reporter was told that 23,347 people watched a cricket match between India and Sri Lanka. In the newspaper he gave the headline as: 23,000 watch cricket match. How did he rounded off the number?



Roman numerals

In the number system that you have learnt, all numbers are written using the symbols 1, 2, 3, 4, 5, 6, 7, 8 and 9. These are called **numerals**.

This system was invented in India and carried to other parts of the world by Arabs. That is why it is often called the **Hindu-Arabic system**.

The Romans in ancient times used another system. They used 7 symbols or numerals, representing the following numbers.

Roman numerals	I	V	X	L	C	D	M
Hindu-Arabic numerals	1	5	10	50	100	500	1000

There is no symbol for 0 in the Roman system. It does not use place values to write numbers. It uses rules of addition and subtraction of the above numbers to write other numbers.



Writing numbers 1–39

The symbols I, V and X are used to write numbers 1–39.

Rule 1: Numerals I and X can be repeated. Repetition means addition. I and X can be repeated up to three times.

Rule 2: A numeral written **after** a numeral of greater value, means **addition**

Rule 3: The numeral I written **before** a numeral of greater value means **subtraction**

Rule 4: If the numeral I is placed **between** two numerals of greater value, it is **subtracted from the numeral on the right**.

$$\text{III} = 1 + 1 + 1 = 3$$

$$\text{XX} = 10 + 10 = 20$$

$$\text{VI} = 5 + 1 = 6$$

$$\text{XXV} = 10 + 10 + 5 = 25$$

$$\text{IV} = 5 - 1 = 4$$

$$\text{IX} = 10 - 1 = 9$$

$$\text{XIV} = 10 + (5 - 1) = 14$$

$$\text{XIX} = 10 + (10 - 1) = 19$$

EXERCISE 6

1. Write the Roman numerals.

a) 19 _____

b) 36 _____

c) 25 _____

d) 27 _____

2. Write the Hindu-Arabic numerals.

a) XXVIII

b) XXIV _____

c) XXX _____

d) XVII _____

3. Use the Roman system rules to complete the table.

1	I		21	XXI	
2	II	$1 + 1$	22		$10 + 10 + 1$
3	III		23		
4	IV	$5 - 1$	24		$10 + 10 + (5 - 1)$
5	V		25	XXV	
6		$5 + 1$	26		
7			27		
8			28		
9			29	XXIX	
10	X		30	XXX	
11	XI		31		
12		$10 + 1 + 1$	32		
13			33		$10 + 10 + 10 + 1 + 1 + 1$
14	XIV		34		
15		$10 + 5$	35	XXXV	
16	XVI		36		
17			37		
18			38		
19	XIX		39		$10 + 10 + 10 + (10 - 1)$
20		$10 + 10$	40		

Check it!

Golu and Molu wrote the following Roman numerals for the given Hindu-Arabic numerals. Put \checkmark for right and \times for wrong answer. Also point out the mistake

22

GOLU

XXVII



MOLU

XXII



4

IV

IIII

14

XIV

XIIII

9

VIIII

IX