

MATH



CHAPTER 3: COMPARISON OF NUMBERS

COMPARISON OF NUMBERS

➤ INTRODUCTION

Comparison enables us to identify what is greater or smaller between two objects and what is greatest and smallest among more than two objects.

For example: if we compare [1] & [2], it is clear that [2] is bigger number but if we compare [1], [2] & [3] then [1] is the smallest and [3] is the biggest number. While [2] comes between [1] & [3] therefore, it is greater or bigger than [1] but smaller or less than [3].

Comparison of Numbers

Let us see the given below examples:

Example:

$$[3] > [2]$$

It means that [3] is greater than [2] and '>' is the sign of 'greater than' or bigger than 'or more than' [3] > [2] is read as:

(a) [3] is greater than [2]

(b) [3] is bigger than [2]

(c) [3] is more than [2]

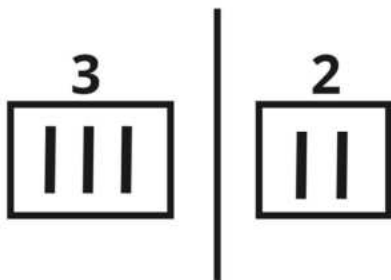
[3] > [2] is also written as [2] < [3] and read as [2] is less than [3]

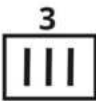

Therefore, it is clear that the mouth of the sign '>' is open to the side of the greater or bigger number.

Example:

How [3] is a greater number between [2] and 3?

For that we apply vertical line trick:





When counted  is more than 

Hence $[3] > [2]$ Take another example:

Example:

Which one is bigger between $[4]$ and $[6]$?



Clearly  is more than 

$[6] > [4]$ or $[4] < [6]$

Example:

$[10]$ and $[7]$ $[10] > [7]$ or $[7] < [10]$

It means the number $[10]$ has two digits and the number $[7]$ has $[1]$ digit. Therefore, $[10]$ is greater than $[7]$ Take another example:

Example:

If we compare $[85]$ and $[100]$ Then:

$$[100] < [85] \text{ or } [85] < [100]$$

has three digits and [85] has two digits. Therefore, [100] is greater than [85].

If the two numbers have equal number of digits then the digits at extreme left are compared and the number with greater digit is greater.

Example:

If we compare [20] and [10] then:

$$[20] > [10] \text{ or } [10] < [20]$$

To find this result we compare the two numbers.

While comparing two digit numbers, if extreme left digits are equal or same then we compare the next digits to the right and so on. In this case also the number with greater digit is greater.

Example:

When we compare [42] and [49] [49] > [42] or [42] < [49]

Therefore, [49] > [42]

Questions:

1. Which one of the given below options is false?

(a) $1 > 9$

(b) $4 > 3$

(c) $5 > 3$

(d) $9 > 8$

2. $14 > 10$ will be read as _____.

(a) 10 is greater than 14

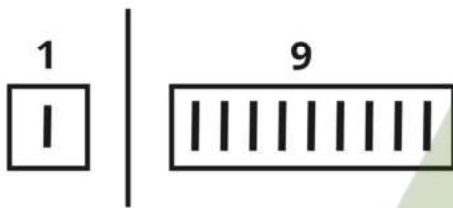
(b) 14 is less than 10

(c) 10 is bigger than 14

(d) 14 is greater than 10

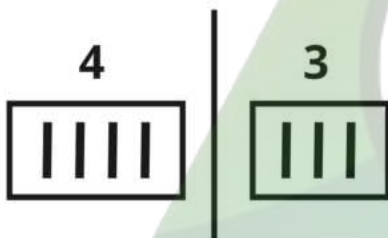
Answer-

1: (a) **Explanation:** Option (a) is correct because:



Hence, $[9] > [1]$

Option (b) is incorrect as it is true. Let's check:



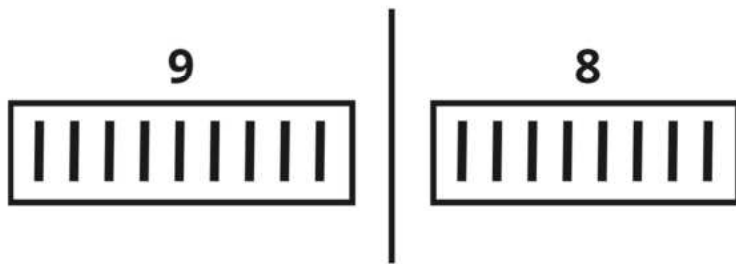
Hence, $[4] > [3]$

Option (c) is incorrect as it is true. Let's check:



Hence, $[5] > [3]$

Option (d) is incorrect as it is true. let us check:



Hence, $[9] > [8]$

2: (d) **Explanation:** $[14] > [10]$ is read as "14 is greater than 10"

Smaller Numbers

See the following **Examples:**

Example:

$[2] < [3]$

It means $[2]$ is less than 3 and ' $<$ ' is the sign of 'less than' or 'smaller than'.

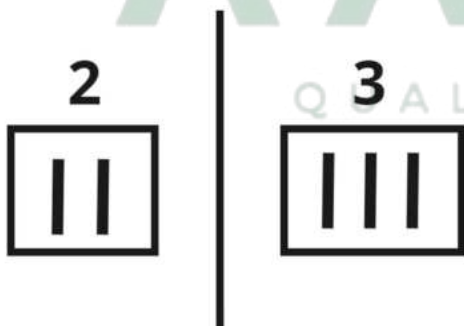
Hence, $[2] < [3]$ is read as:

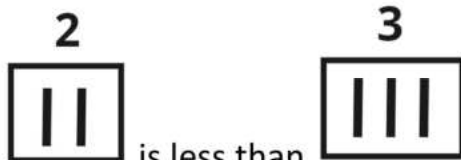
(a) $[2]$ is smaller than $[3]$

(b) $[2]$ is less than $[3]$

$[2] < [3]$ is also written as $[3] > [2]$. So it is clear that the mouth of the sign ' $<$ ' is closed to the side of the smaller number. How $[2]$ is smaller in $[2] < [3]$?

For this, Let's see the vertical line trick:





When counted 2 is less than 3

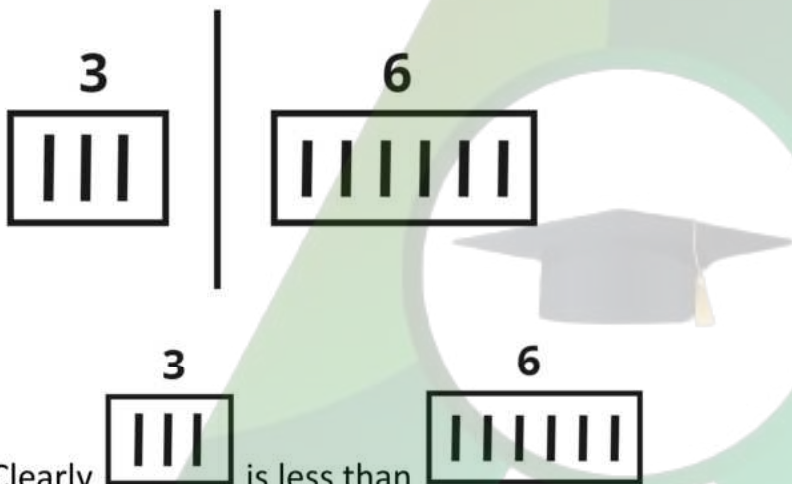
Hence, $2 < 3$

Take another example:

Example:

Which one is smaller when 3 and 6 are compared?

Here we have



Clearly 3 is less than 6

Hence, $3 < 6$ or $6 > 3$

Other Rules

Rule 1: If a number has less digits than another, it is smaller of the two. If we have 8 and 14 Then $8 < 14$ or $14 > 8$

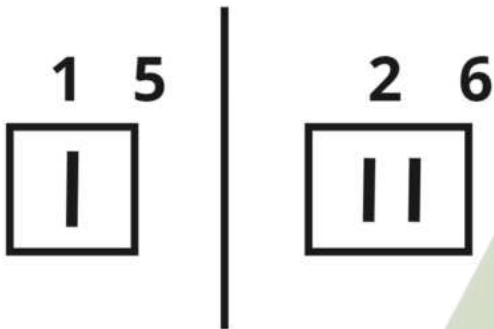
Let us take another **Example:** QUALITY LEARNING

If we compare 25 and 100

Then $25 < 100$ or $100 > 25$

Rule2: If the two numbers have equal number of digits then the digits on extreme left are compared and the number with smaller digit is smaller. When [15] and [26] are compared then $[15] < [26]$ is true.

To know how is it possible just see the trick given below:



Thus $[1] < [2]$ And hence, $[15] < [26]$

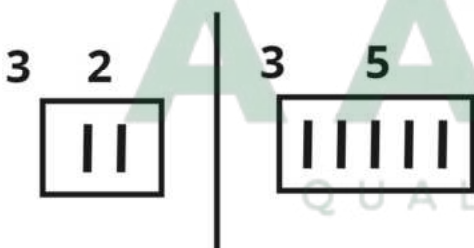
Rule3: While comparing two digit numbers, if extreme left digits are same then we compare the second digit from left. In this case also, the number with smaller digit is smaller.

When we compare [32] and [35]

Then

$[32] < [35]$ or $[35] > [32]$

Trick:



Here $[2] < [5]$

Hence, $[32] < [35]$

Questions:

1. Just see the numbers inside the egg given below and find out which one is the smallest?



- (a) 15
(b) 16
(c) 10
(d) 9
2. Which one is wrong?

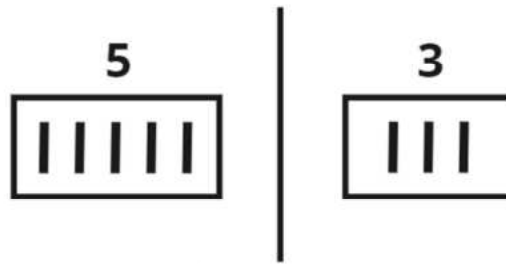
- (a) $[3] < [9]$
(b) $[5] < [10]$
(c) $[4] < [7]$
(d) $[5] < [3]$

Answer-

1: (d) **Explanation:** The only single digit number given. Rest of the options is incorrect because they are double digit numbers and therefore, bigger than **[9]**

2: (d) **Explanation** Option (d) is correct because it is wrong.

Let's check



Hence, $[3] < [5]$ or $[5] > [3]$

Option (a) is incorrect because it is true.

Let's check:



Hence, $[3] < [9]$ Option (b) is incorrect because it is true. In fact 2 digits number 10 is greater than 5.

Option (c) is incorrect because it is true Let's check:



Hence, $[4] < [7]$ or $[7] > [4]$

Equal Numbers

Equal means neither greater nor less than.

Let's consider **[1]** and **[01]** These numbers are equal because if one or more zeroes is put before any number, the number remains unchanged. Thus **[1]** and **[01]** can be written as:

$$[1] = [01] \text{ or } [01] = [1]$$

Where '=' is the sign of equal

And **[1] = [01]** is read as,

[1] is equal to **[01]**

Similarly take another **Example:**

[04] and **[004]** is equal and they can be written as

$$[04] = [004] \text{ or } [004] = [04]$$

Questions:

1. Which one of the following pair of numbers is not equal?

(a) 2 and 02

(b) 02 and 2

(c) 002 and 2

(d) 20 and 2

2. Choose the incorrect statement.

(a) 05 and 5 are equal

(b) 60 and 06 are equal

(c) 07 and 007 are equal

(d) 08 and 8 are equal

Answer-

1: (d) **Explanation:** [20] is a double digit number and [2] is a single digit number. So [20] > [2].

2: (b) **Explanation:** [06] is equal to [6] and [60] > [06] or [6]

Comparison of Images (Size)

The comparison is done through pictures.

❖ Size Comparison

Let's understand it through an **Example:**



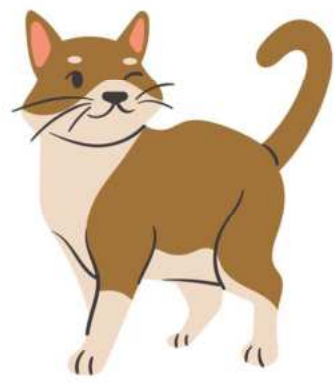
(A) Small

(B) Big

In the above-mentioned pictures (a) is smaller and (b) is bigger. Therefore, (a) is smaller in comparison of (b) while (b) is bigger in comparison of (a). Thus, we can present it as:



(A) Small



(B) Big



Or



(B) Big



(A) Small



Take another Example:

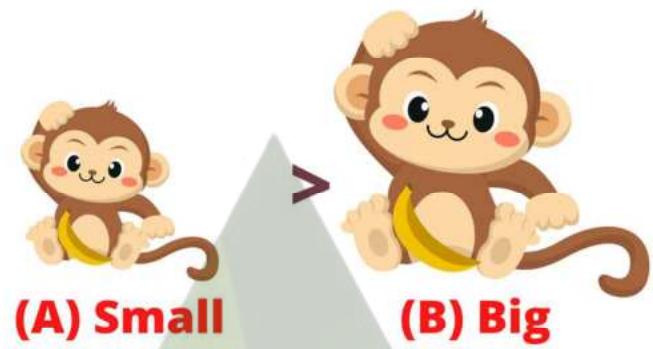


(A) Small

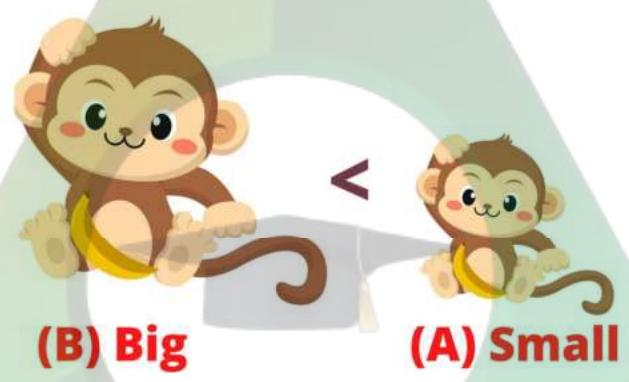


(B) Big

Here again picture (a) is smaller in comparison of (b) and picture (b) is bigger in comparison of (a) Thus we can present it as



Or



Comparison of (Number) Images

Just see the two groups of pictures given below:

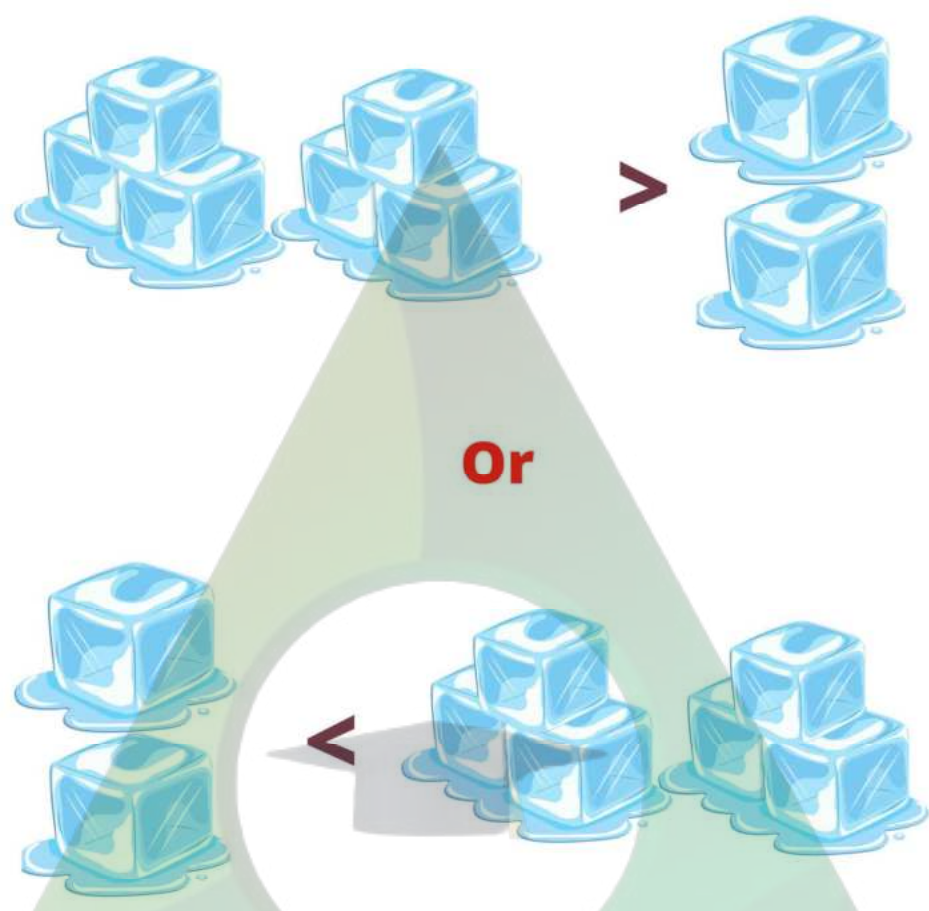


Group - (A)



Group - (B)

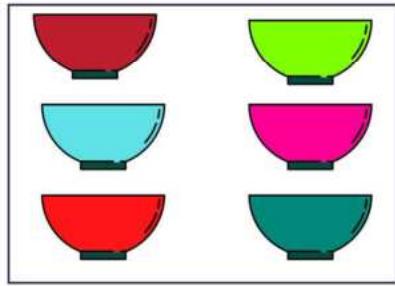
Here group A has four keys and group B has two keys. Therefore, group A is greater than group B and this can be presented as:



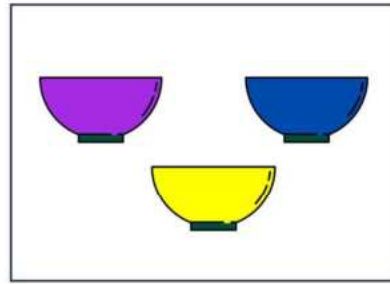
Take another Example:



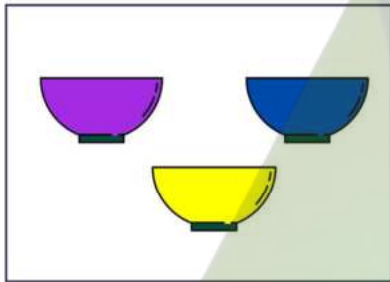
Here box (a) has 6 bowls while (b) has 3 bowls. Thus box (a) has more number of bowls in comparison of box (b). It can be presented as:



>



Or



<

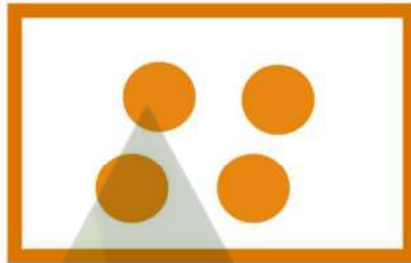


Questions:

1. Which one of the following is not true?



2. The following picture is greater than which one of the following options? Calculate in term of numbers.



Answer-

1: (c) **Explanation:** Picture in left is smaller than the picture in right.

2: (d)

AARSHI

QUALITY LEARNING

Ascending and Descending Order

Numbers can be arranged in ascending or descending order. In other words you can say that numbers can be arranged from smallest to greatest or greatest to smallest.

❖ Ascending Order

In ascending order numbers are arranged in the order from smallest to greatest. For example: [2], [4], [6], [8], [10], [12] are in ascending order.

Example:

Arrange the following numbers in ascending order:

[3], [9], [7], [16], [15]

The correct answer is [3], [7], [9], [15], [16].

To solve this first we write smallest number that is [3]. Then again write the smallest number from the remaining numbers that is [7] and thus continue in the same way. The numbers are arranged in the ascending order.

Example:

Arrange the following numbers in ascending order:

[19], [8], [15], [12], [21]

The correct answer is [8], [12], [15], [19], [21]

To solve this first we write smallest number that is [8]. Then again write the smallest number from the remaining numbers that is [12] and thus continue in the same way. The numbers are arranged in the ascending order.

Questions:

1. Arrange the following numbers in ascending order: 65, 98, 58, 49, 36, 62.

- (a) 36,49,58,62,65,98
- (b) 36,49,58,98,65,62
- (c) 49,36,58,62,65,98
- (d) 36,49,62,58,65,98

2. Arrange the following numbers in ascending order: 89, 91, 87, 86, 95, 79

- (a) 79,86,87,89,95,91
- (b) 79,86,87,91,89,95
- (c) 89,86,87,79,91,95
- (d) 79,86,87,89,91,95

Answer-

1: (a)

2: (d)

Descending Order

In descending order numbers are written from greatest to smallest.

For Example: [18], [17], [14], [9], [8] are in descending order.

Example:

Arrange the following numbers in descending order:

[3], [9], [7], [16], [15]

The correct answer is [16], [15], [9], [7], [3]

To solve this first we write greatest number that is [16]. Then again write the greatest number from the remaining numbers that is [15] and thus continue in the same way.

The numbers are arranged in the descending order.

Example:

Arrange the following numbers in descending order:

[19], [8], [15], [12], [21]

The correct answer is **[21], [19], [15], [12], [8]**

To solve this first we write greatest number that is **[21]**. Then again write the greatest number from the remaining numbers that is **[19]** and thus continue in the same way.

The numbers are arranged in the descending order.

Questions:

1. Arrange the following numbers in descending order: 65, 98, 58, 49, 36, 62

(a) 36,49,58,62,65,98

(b) 98,65,62,58,49,36

(c) 98,65,62,58,36,49

(d) 98,62,65,58,49,36

2. Arrange the following numbers in descending order: 89, 91, 87, 86, 95, 79

(a) 95,91,89,87,86,79

(b) 95,89,91,87,86,79

(c) 89, 95, 91, 89, 87, 86, 79

(d) 79, 86, 87, 89, 91, 95

Answer-

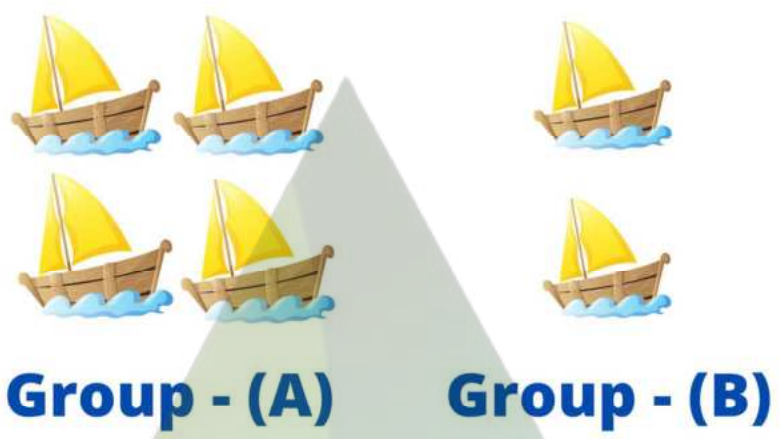
1: (b)

2: (a)

Number Comparison

Just see the two groups of pictures given below:

Example:



Here group A has four keys and group B has two keys. Therefore, group A is greater than group B.

Questions:

1. Here group A has six Balls and group B has three Balls:

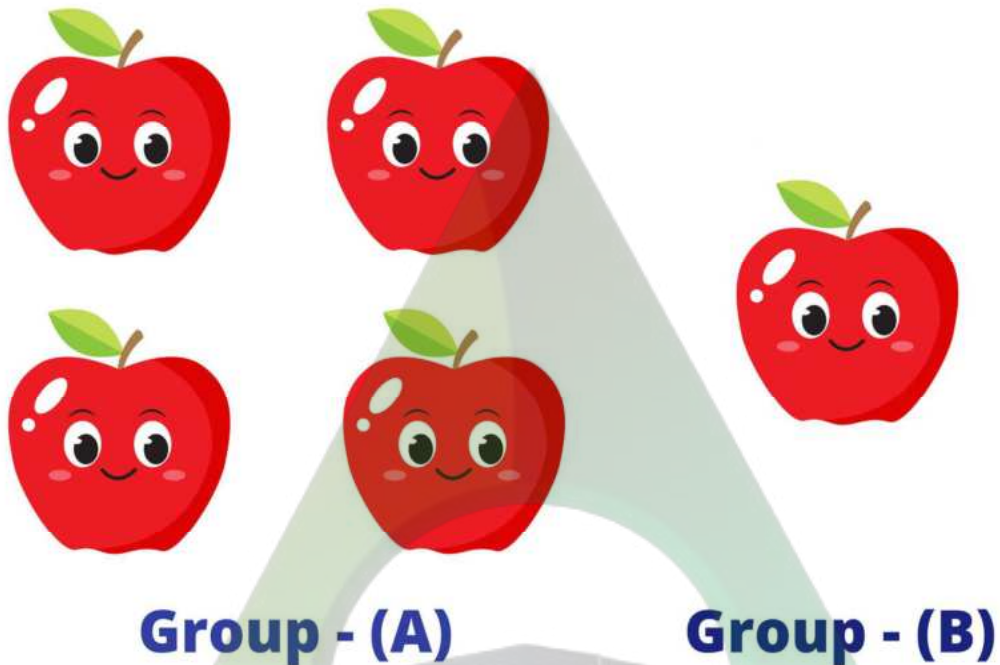


(a) group A is greater than group B.

(b) group B is greater than group A.

(c) Both groups are equal.

2. Which group has more apple?



Answer-

1: (a)

2: Group A Has More apple.

You Must Know

We can compare the things on the basis of colour, size, shape, appearance, etc.

Summary

- ❖ Comparison means which one is greater or more and smaller than other.
- ❖ Sign of greater or bigger or more is '>'.
- ❖ Sign of smaller or less is '<'.
- ❖ Equal numbers are neither greater than nor smaller or less than each other.

- ❖ If one or more zeroes are put before any number, then number remains unchanged.
For example 06 and 6 are equal.
- ❖ Comparison of images is the pictorial comparison.
- ❖ Ascending order means smallest to greatest.
- ❖ Descending order means greatest to smallest.

