



Common Factors

Factors of 15 - 1, 3, 5, 15
 Factors of 18 - 1, 2, 3, 6, 9, 18
 Factors of 21 - 1, 3, 7, 21



Factors 1 and 3 are common factors among the factors of 15, 18 and 21.

Therefore, 1 and 3 are common factors of all the three numbers. These are known as common factors.

Let's Do It -

Find out the remainder obtained by dividing the three numbers by both the common factors of 15, 18, 21 numbers. What will be the conclusion?

We have seen that when the given numbers are divided by their common factors, the remainder is zero.

Now see the factors of 36 and 54 -

Factors of 36 - 1, 2, 3, 4, 6, 9, 12, 18, 36
 Factors of 54 - 1, 2, 3, 6, 9, 18, 27, 54



Which are the common factors of 36 and 54?

18 is the highest common factor of all the common factors (1, 2, 3, 6, 9, 18) of 36 and 54. Therefore, it is known as Highest Common Factor or Greatest Common Divisor. H.C.F. or G.C.D. is the short form of Highest Common Factor or Greatest Common Divisor.



Let's Understand - My Father has to plant 12 plants of tomato and 18 plants of eggplant in various rows. Maximum, how many plants should be planted in one row, so that we get the equal number of plants in each row and no plant is left.

Factors of 12 - 1, 2, 3, 4, 6, 12

Factors of 18 - 1, 2, 3, 6, 9, 18



Common factors of 12 and 18 are 1, 2, 3, 6

Here 6 is the highest common factor. Therefore, maximum 6 plants can be planted in one row.

Highest Common Factor of Co-Prime Numbers

Factors of 15 1, 3, 5, 15

Factors of 16 1, 2, 4, 8, 16

1 is the only common factor of 15 and 16.

Therefore, 1 is the Highest Common Factor of 15 and 16

Highest Common Factor
of co-prime numbers is
always 1.

We have learnt

- 1 is the common and smallest factor of all the numbers.
- The factors of two or more numbers which are common are called Common Factors of these numbers.
- The highest Common Factor of co-prime numbers is always 1.
- The Highest Common Factor of two or more than two numbers is the highest factor which is common among the factors of all the numbers.
- The H.C.F. of two or more than two numbers can never be greater than any of those numbers but it can be equal to the smallest number of the given numbers.



1. Find the Highest Common Factor of the following numbers -
(a) 9 and 15 (b) 24 and 40 (c) 4, 8 and 12 (d) 12, 18 and 27
2. Find the H.C.F. of the following numbers -
(a) 18, 12 (b) 52, 78 (c) 14, 15 (d) 8, 20 and 24
3. Find the highest number that divides the numbers 24, 30, 48 exactly.
4. Shade the circle of the correct answer (questions based on guess) -
(i) The H.C.F. of 9 and 12 will be -
(a) 15 ☐ (b) 1 ☐ (c) 12 ☐ (d) 3 ☐
(ii) The H.C.F. of 21 and 18 will be -
(a) 3 ☐ (b) 7 ☐ (c) 5 ☐ (d) 4 ☐

Great Mathematician

A. R. Rao

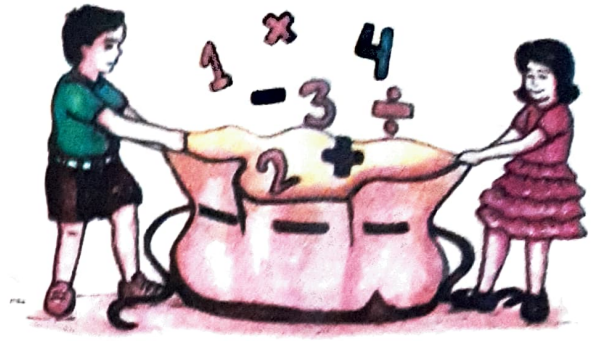


Annaswami Rangnath Rao was born on 23 September 1908 in Tamil Nadu. His contribution in the field of Mathematics is outstanding. He was also the Head of the Department of Mathematics at Vikram Sarabhai Community Center. Shri Rao established the first maths laboratory in Gujarat and he was honoured with president's award by Science and Technology Institute of Indian Government.



1. Tell -

- (a) The smallest number of six digits.
- (b) The greatest number of five digits.
- (c) Successor of 33671.
- (d) Predecessor of 99999.



2. Select and write the greatest and the smallest number from the following groups of numbers -

- (a) 45309, 99999, 89876, 34903, 99099.
- (b) 400011, 411000, 110004, 140010, 114000.

3. 90876 examinees appeared for an examination, in which 76897 are boys. Find the number of girls.

4. The sum of two numbers is 33602. If the first number is 8390 find the second number.

5. Find the product -

- (a) 440×200
- (b) 520×0
- (c) 8786×1

6. There are 1320 students in a school. If 66 students can be accommodated in a bus. How many buses are needed to carry all of them?



7. Find the value -

(a) $885 \div 5 \times 3 + 18 - 6$

(b) $7 \times 50 + 32 \div 8 - 121$

(c) $21 \div 7 \times 18 - 2 \times 23$

(d) $31 + 24 \div 8 \times 9 - 39$

8. Write all the multiples of 12 having two digits.

9. Write the factors of the following numbers -

(a) 12 (b) 30 (c) 56

10. If 9 is one of the factors of 45, then find the other factor.

11. Write three pairs of prime numbers which fulfill the following conditions-

(a) have same digits in different order as 13 and 31.

(b) with difference of 2, as 5 and 7.

(c) with difference of 10, as 19 and 29.

12. Select odd and even numbers from the following numbers-

68, 71, 84, 90, 93

13. Write the Highest Common Factors of these numbers -

(a) 33, 121

(b) 32, 36, 60

(c) 65, 104

14. Write the smallest number of 5 digits and find all the prime factors of it.

15. Write all the prime numbers between 1 to 50.

