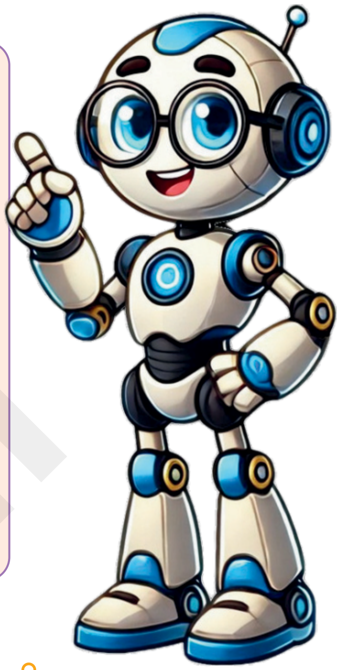
6

Factors and Multiples

We'll cover the following key points:

- → Factors
- → Common Factors and Highest Common Factor
- → Multiples
- → Checking Multiples by Division
- → Common Multiples and Least Common Multiple
- → Multiples
- → Prime and Composite Numbers
- → Co-prime Numbers
- → Prime Factorigation
- → Finding LCM by Prime Factorisation
- → Finding HCF by Prime Factorisation



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Learning Outcomes

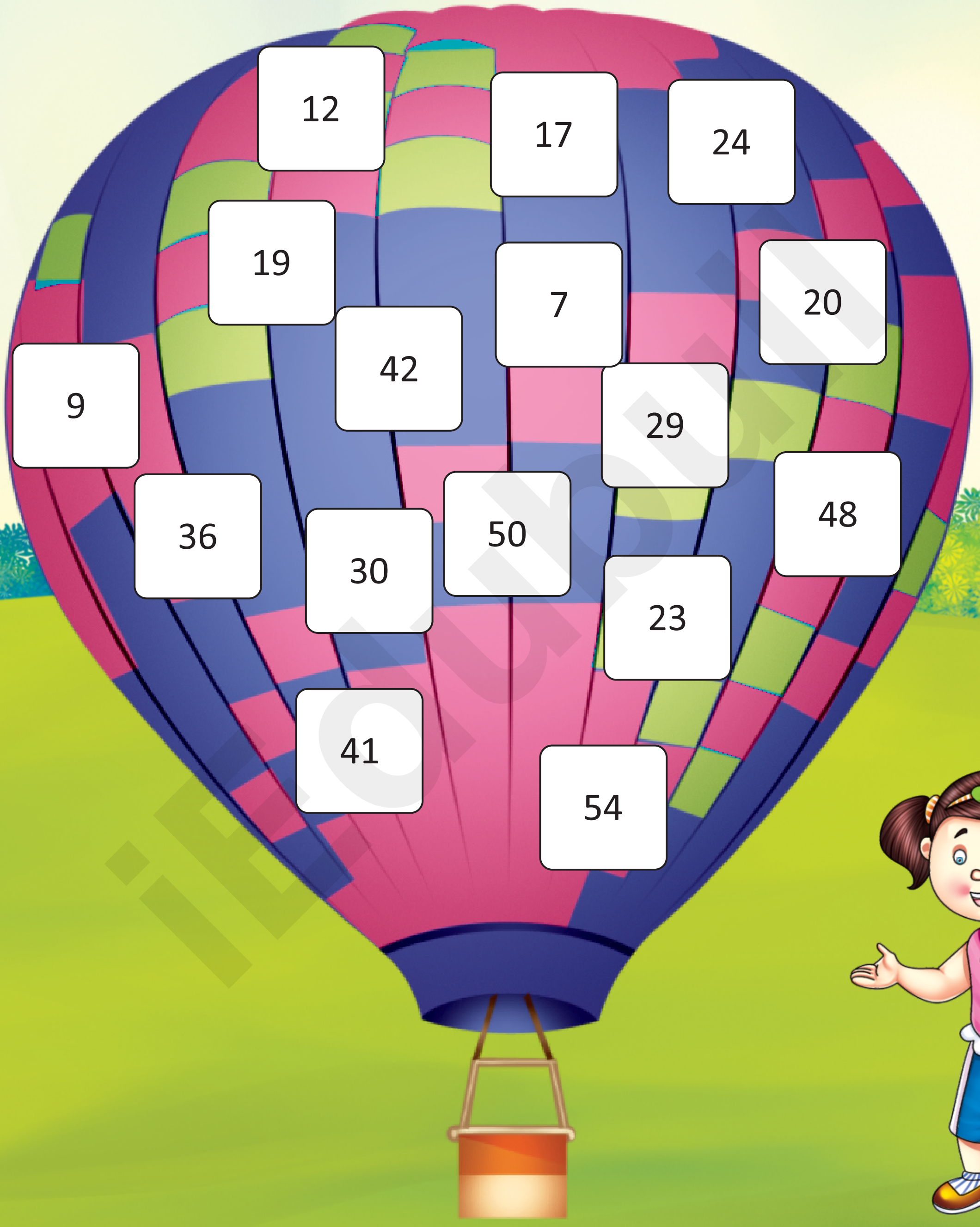
By the end of this chapter, students will be able to:

- Understand what factors are (numbers that divide exactly into another number, e.g., factors of 12 are 1, 2, 3, 4, 6, 12).
- Find the factors of a given number (e.g., find the factors of 18).
- Understand what multiples are (numbers that are the result of multiplying a number by an integer, e.g., multiples of 3 are 3, 6, 9, 12, etc.).
- List the first few multiples of a number (e.g., multiples of 5 are 5, 10, 15, 20, etc.).
- Identify common factors of two or more numbers (e.g., common factors of 12 and 18 are 1, 2, 3, 6).
- Identify common multiples of two or more numbers (e.g., common multiples of 4 and 6 are 12, 24, 36).
- Find the greatest common factor (GCF) of two numbers (e.g., GCF of 12 and 18 is 6).
- Find the least common multiple (LCM) of two numbers (e.g., LCM of 4 and 6 is 12).

Warm Up

Experiential Learning

Colour the numbers that have only two factors in green and the numbers that have more than two factors in red.



Factors

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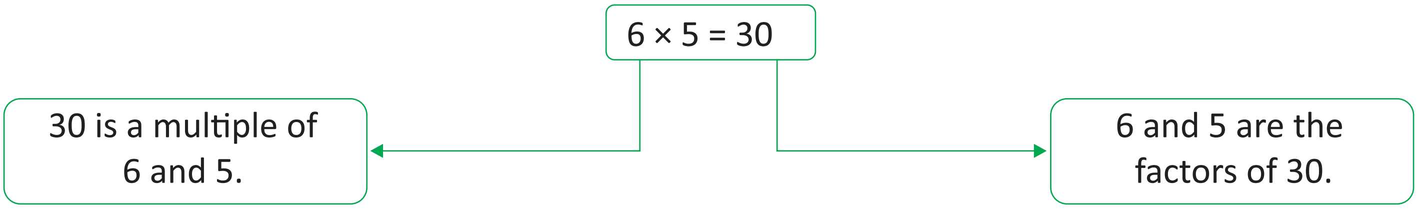
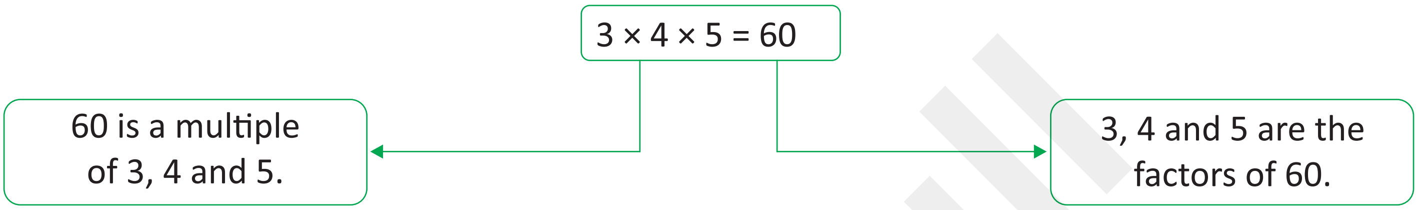
When a number divides another number exactly without leaving any remainder, the first number is said to be the factor of the second. for example:





Similarly, 5, 9 are the factors of 45, because 5 × 9 = 45.

8, 9 are the factors of 72, because 8 × 9 = 72.

2, 3, 5 are the factors of 30, because 2 × 3 × 5 = 30

When we multiply any two or more numbers, we get a product. The product is a multiple of each of the number multiplied and each number is a factor of the product.

Let us find all the factors of 12. We have

$$\begin{array}{r} 12 \\ 1\overline{)\,12} \\ -1\downarrow \\ \hline 2 \\ -2 \\ \hline 0 \end{array} \qquad \begin{array}{r} 6 \\ 2\overline{)\,12} \\ -12 \\ \hline 0 \end{array} \qquad \begin{array}{r} 4 \\ 3\overline{)\,12} \\ -12 \\ \hline 0 \end{array} \qquad \begin{array}{r} 3 \\ 4\overline{)\,12} \\ -12 \\ \hline 0 \end{array} \qquad \begin{array}{r} 2 \\ 6\overline{)\,12} \\ -12 \\ \hline 0 \end{array}$$

So, the multiplication facts of 12 are 12 = 1 × 12, 12 = 2 × 6, 12 = 3 × 4.

Also, (1,12), (2,6) , (3,4) are the factors of 12.

These are arranged in increasing order as follows : 1, 2, 3, 4, 6, 12

Hence, the factors of 12 are 1, 2, 3, 4, 6 and 12.

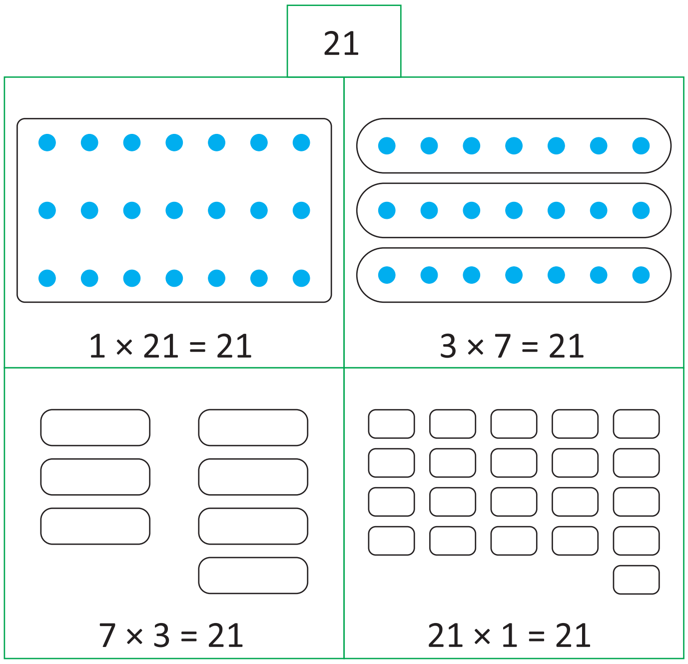
Thus, in a division sum if the remainder is zero, the factors of the dividend are 1, divisor and the quotient.

1 is a factor of every number, e.g. 9 ÷ 1 = 9

The greatest factor of a number is the number itself.

Example : Factors of 6 = 1, 2, 3, 6. So, 6 is the greatest factor.

Make dots and find the factors of 21 and 33 by grouping.



33 Try It!

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Common Factors and Highest Common Factor

Common Factors and Highest Common Factor

Consider the two numbers 6 and 9.

Factors of 6 : 1, 2, 3, 6
Factors of 9 : 1, 3, 9
The common factors of 6 and 9 are 1 and 3.

Let us take another example.

Factors of 12 = 1, 2, 3, 4, 6, 12
Factors of 24 = 1, 2, 3, 4, 6, 8, 12, 24

- The common factors of 12 and 24 are 1, 2, 3, 4, 6 and 12.
- 12 is the highest common factor or HCF of 12 and 24.
- If we have to find the HCF of two numbers, and if the smaller number is the factor of the greater number, then the smaller number is also the HCF of the two.

For example, between 12 and 24, 12 is a factor of 24, hence it is the HCF.

Example 1: Find the highest common factor of 42 and 48.

Solution : Factors of 42 : 1 , 2 , 3 , 6 , 7 , 14 , 21 , 42
Factors of 48 : 1 , 2 , 3 , 4 , 6 , 8 , 12 , 16 , 24 , 48

The common factors of 42 and 48 are 1, 2, 3, 6 and the highest of them is 6.

∴ The HCF of 42 and 48 is 6.

Example 2: Find the HCF of 9 and 16.

Solution : Factors of 9 : 1 , 3 , 9

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

The common factor of 9 and 16 is 1.

∴ The HCF of 9 and 16 is 1.

Exercise 6.1

Knowledge Application

1. Write True or False.

(a) 40 is exactly divisible by 20.

(b) A number is divisible by another number, if on dividing the remainder is left 0.

(c) 36 is not exactly divisible by 4.

(d) Every multiple is a multiple of 1.

(e) A number is not a factor of another number.

2. Find the factors of the following numbers :

(a) 18 = ______________________ (b) 20 = ______________________

(c) 42 = ______________________ (d) 25 = ______________________

3. List the common factors and find the HCF.

(a) 9: ________________

15: ________________ HCF = ______

(b) 18: ________________

4: ________________ HCF = ______

(c) 15: ________________

35: ________________ HCF = ______

4. Circle the number which is the HCF in each of the following pairs :

(a) 10, 30 (b) 15, 45 (c) 18, 36

(d) 54, 108 (e) 42, 126 (f) 100, 1000

Multiples

When we multiply two or more numbers, we get another number. This number is called the product.

The product is a multiple of any of these multipliers.

Multiple means "number of times."

For example, 6 × 7 = 42 or 42 is 7 times 6.

So, 42 is a multiple of 6

Again 7 × 6 = 42 or 42 is 6 times 7.

So 42 is a multiple of 7.

Multiples of 3			
3 × 1	=	3	1st multiple
3 × 2	=	6	2nd multiple
3 × 3	=	9	3rd multiple
3 × 4	=	12	4th multiple
3 × 5	=	15	5th multiple

When a number is multiplied by 1, we get the first multiple, when the number is multiplied by 3, we get the second multiple, and so on.

Take a Task

Watch Remedial

Properties of Multiple Facts

1. Zero is a multiple of every number.
   0 × 0 = 0, 0 × 1 = 0, 0 ×18 = 0, 0 × 125 = 0, ...
2. Every number is a multiple of 1
   1 × 1 = 1, 1 × 2 = 2, 1 × 5 = 5, 1 × 9 = 9, 1 × 65 = 65 , ...
3. The first multiple of every number is the number itself.
   8 × 1 = 8, 19 × 1 = 19, 345 × 1 = 345, ... 1593 × 1 = 1593, ...
4. The multiples of a number are either greater than or equal to the number.
5. The multiple of a number can be divided by the number without leaving any remainder.

Examples: As 16 is a multiple of 4, 16 ÷ 4 = 4 (Quotient) and 0 (Remainder)

As 64 is a multiple of 8, 64 ÷ 8 = 8 (Quotient) and 0 (Remainder)

Exercise 6.2

Knowledge Application

1. Fill in the blanks.

(a) In 4 × 8 = 32, 32 is a multiple of ________ and _________ .

(b) Every number is a multiple of _________ and _________ .

(c) The multiples of any number are ______________________ .

(d) In 2 × 5 × 7 = 70, 70 is a multiples of ______ , ______ and _____ .

(e) The multiples of 10 between 30 and 90 are _______________ .

(f) The multiples of 7 below 84 are _________________________ .

2. Write the first five multiples of the given numbers.

	5	7	11	13	9	15
1.						
2.						
3.						
4.						
5.						

3. Tick (✓) the multiples of the given numbers.

(a) 5 6, 9, 15, 30, 33, 45
(b) 6 18, 19, 21, 24, 28, 30
(c) 11 22, 24, 28, 33, 44, 45
(d) 15 30, 45, 50, 55, 60, 65

4. Fill in the 5th and 15th multiple of the followings.

		5th multiple	15th multiple
(a)	3	15	45
(b)	7	○	○
(c)	9	○	○
(d)	6	○	○

Checking Multiples by Division

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Example 3: Is 20 a multiple of 4 and 5?

Solution: We know that 4 × 5 = 20
and 20 ÷ 5 = 4 or 20 ÷ 4 = 5

4 and 5 divide 20 without leaving a remainder. Therefore, 20 is a multiple of both 4 and 5.

Example 4: Is 81 a multiple of 9?

Solution : Yes, because
81 = 9 × 9.

Example 5: Is 21 a multiple of 3 and 5 ?

Solution: 21 ÷ 3 = 7 (Quotient) and 0 (remainder) and 21 ÷ 5 ⟶ 4 (Quotient) and 1 (remainder)

Hence, 21 is a multiple of 3 but not a multiple of 5.

Even and odd Numbers

Even Numbers : A number which is a multiple of 2 is called an even number. For example, see the shaded columns of the table given below.

In other words, we can say that a number exactly divisible by 2 is called an ever number.

Odd Numbers : A number which is not multiple of 2 is called an odd number. In other words, odd numbers are not exactly divisible by 2. For example, see the unshaded columns are not exactly divisible by 2.

Table of Even and Odd numbers

Odd number

Even number

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
odd	even	odd	even	odd	even	odd	even	odd	even

Take a Task

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Common Multiples and Least Common Multiple

Common Multiples

Multiples of 5 = 5, 10, 15, 20, 25, 30, 35, 40, ...

Multiples of 10 = 10, 20, 30, 40, ...

The first few common multiples of both 5 and 10 are shown in coloured circles. So the common multiples of 5 and 10 are: 10, 20, 30, 40, ...

Least Common Multiple (LCM)

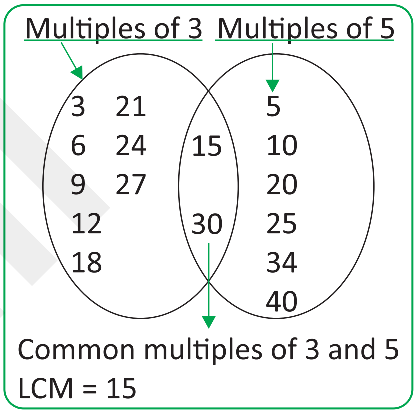
Out of these four, 10 is the smallest or least common multiple or (LCM) of 5 and 10.

The next three common multiples are 20, 30, and 40.

Properties of LCM

1. The LCM of two co-prime numbers is their product.
2. The LCM of two or more numbers can't be less than any of them.
3. If a number is a factor of another number, then their LCM is the number itself.

Finding the Least Common Multiple or LCM



Example 6: Find out the LCM of 3 and 5 from the given set of numbers.

3, 5, 6, 9, 10, 12, 15, 18, 20, 21, 24, 25, 27, 30, 35, 40

Solution : Multiples of 3 = 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

Multiples of 5 = 5, 10, 15, 20, 25, 30, 35, 40

Common multiples of 3 and 5 = 15, 30

LCM of 3 and 5 = 15

Exercise 6.3

1. Form multiples of the following odd numbers :

(a) 3 3, 6, 9, ____ , ____ , ____ ,

(b) 5 5, 10, 15, ____ , ____ , ____ ,

(c) 9 9, 18, 27, ____ , ____ , ____ ,

(d) 15 15, 30, 45, ____ , ____ , ____ ,

(e) Even numbers have multiples which are also ______________ numbers.

2. Form multiples of the following even numbers :

(a) 6 6, 12, 18, ____ , ____ , ____ ,

(b) 8 8, 16, 24, ____ , ____ , ____ ,

(c) In case of odd numbers, the 1st, 3rd, 5th, etc. multiples are _________ numbers, and the 2nd, 4th, 6th, etc. multiples are _________ numbers.

3. Test whether the following are multiples of the given number. State True or False.

(a) Is 35 a multiple of 2 ? ☐

(b) Is 70 a multiple of 5 ? ☐

(c) Is 92 a multiples of 7 ? ☐

(d) Is 60 a multiple of 3 ? ☐

(e) Is 93 a multiples of 3 ? ☐

(f) Is 48 a multiple of 8 ? ☐

4. Find the least common multiples for each pair of numbers and also write the next 3 common multiples.

	Number	Multiples	LCM
a.	3 4		
b.	2 5		
c.	9 12		

5. Find the LCM for these sets of three numbers.

(a) 4, 6, 8 (b) 3, 8, 12 (c) 6, 7, 12 (d) 3, 5, 6

(e) 5, 15, 20 (f) 5, 7, 10 (g) 4, 8, 12 (h) 14, 21

Multiples

A number is divisible by another number if it leaves no remainder. Divisibility test helps us to check quickly, if a number is divisible by another number or not.

Let us see the rules of divisibility by 2, 3, 4, 5, 6, 9 and 10

Divisibility by 2

All even numbers are divisible by 2.

Examples:

6 ÷ 2 = 3

18 ÷ 2 = 9

36 ÷ 2 = 18

50 ÷ 2 = 25

22 ÷ 2 = 11

24 ÷ 2 = 12

Divisibility by 3

If the sum of the digits of a number is divisible by 3, the number is divisible by 3.

Examples:

27 : 2 + 7 = 9

Here, 9 is divisible by 3, therefore

27 ÷ 3 = 9

81 : 8 + 1 = 9

Here, 9 is divisible by 3, therefore

81 ÷ 3 = 27

Divisibility by 4

If the number formed by tens and ones digit is divisible by 4, then the number is divisible by 4.

Examples: 512

Number formed by tens and ones digit = 12

12 ÷ 4 = 3

Thus, 512 ÷ 4 = 128

Divisibility by 6

If a number is divisible by 2 and 3, it is also divisible by 6.

Examples:

48 ÷ 2 = 24

and 48 ÷ 3 = 16

so, 48 ÷ 6 = 8

Divisibility by 5

All numbers ending with 0 or 5 are divisible by 5.

Examples:

25 ÷ 5 = 5
45 ÷ 5 = 9
320 ÷ 5 = 64
205 ÷ 5 = 41

Divisibility by 10

All numbers ending with 0 are divisible by 10.

Examples:

90 ÷ 10 = 9
110 ÷ 10 = 11
330 ÷ 10 = 33

Divisibility by 9

If the sum of the digits of a number is divisible by 9, the number is divisible by 9.

81: 8 +1 = 9; 27 : 2 + 7 = 9

Here, 9 is divisible by 9, therefore

81 ÷ 9 = 9; 27 ÷ 9 = 3

Take a Task

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Prime and Composite Numbers

1 has only one factor and that is itself. It is called a **unique number**.

Numbers having only two factors, i.e. 1 and the number itself, are called **prime numbers**.

Examples are 2, 3, 5, 7, 11, etc.

Numbers having three or more factors are called **composite numbers**.

Examples are 4, 6, 8, 9, 10, 12, etc.

Number	Factors					
①	1					
②	1	2				
③	1	3				
4	1	2	4			
⑤	1	5				
6	1	2	3	6		
⑦	1	7				
8	1	2	4	8		
9	1	3				
10	1	2	5	10		
⑪	1	11				
12	1	2	3	4	6	12

Finding Prime and Composite Numbers from 1 to 100

A shortest method is given below to find out the prime numbers between 1 and 100.

Step 1: Cross out 1.

Step 2: Cross out all the even numbers except 2.

Step 3: Cross out all the multiples of 3 except 3.

Step 4: Cross out all the multiples of 5 except 5.

Step 5: Cross out all the multiples of 7 except 7.

The numbers not crossed out are the **prime numbers**. The crossed out numbers are composite numbers except 1, which is a unique number.

~~1~~	2	3	~~4~~	5	~~6~~	7	~~8~~	~~9~~	~~10~~
11	~~12~~	13	~~14~~	~~15~~	~~16~~	17	~~18~~	19	~~20~~
~~21~~	~~22~~	23	~~24~~	~~25~~	~~26~~	~~27~~	~~28~~	29	~~30~~
31	~~32~~	~~33~~	~~34~~	~~35~~	~~36~~	37	~~38~~	~~39~~	~~40~~
41	~~42~~	43	~~44~~	~~45~~	~~46~~	47	~~48~~	~~49~~	~~50~~
~~51~~	~~52~~	53	~~54~~	~~55~~	~~56~~	~~57~~	~~58~~	59	~~60~~
61	~~62~~	~~63~~	~~64~~	~~65~~	~~66~~	67	~~68~~	~~69~~	~~70~~
71	~~72~~	73	~~74~~	~~75~~	~~76~~	~~77~~	~~78~~	79	~~80~~
~~81~~	~~82~~	83	~~84~~	~~85~~	~~86~~	~~87~~	~~88~~	89	~~90~~
~~91~~	~~92~~	~~93~~	~~94~~	~~95~~	~~96~~	97	~~98~~	~~99~~	~~100~~

Prime Numbers

2, 3, 5, 7, 11, 13, 17, 19,
23, 29, 31, 37, 41, 43, 47,
53, 59, 61, 67, 79, 83, 89, 97

Twin Prime Numbers

Prime numbers whose difference is 2 are alled twin prime numbers or simply twin primes.

For example,

(3, 5), (5, 7), (11, 13), (17, 19) etc. are the pairs of twin primes.

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Co-prime Numbers

For Example : Find the HCF of 7 and 11.

$$\begin{array}{c|l} 1 & 7,\ 11 \\ \hline & 7,\ 11 \end{array} \qquad \text{HCF} = 1$$

1. When the HCF of a pair of numbers is 1, the numbers are called co-prime numbers.

2. Two consecutive numbers are always co-prime.

3. Two prime numbers are always co-prime, but co-prime numbers need not always be prime.

For Example: Find the HCF of 25 and 27.

$$\begin{array}{c|l} 1 & 25,\ 27 \\ \hline & 25,\ 27 \end{array}$$

HCF of 25 and 27 is 1.

25 and 27 are co-prime, but they are not primes.

4. A prime and a composite number will be co-prime except when the composite number is a multiple of the prime number.

Example: 7 and 28 or 11 and 22 are not co-primes.

Exercise 6.4

Knowledge Application

1. Underline the numbers which are divisible by the circled number.

(a) ② : 35, 78, 33, 156, 314

(b) ③ : 39, 348, 756, 396, 543

(c) ⑥ : 54, 154, 156, 492, 921

(d) ④ : 801, 116, 204, 420, 632

(e) ⑤ : 105, 370, 382, 225, 570

(f) ⑩ : 590, 840, 333, 720, 293

(g) ⑨ : 369, 720, 298, 144, 189

2. Fill in the blanks.

(a) A number is divisible by 10 if it ends with __________ .

(b) A number is divisible by 5 if it ends with __________ or __________ .

(c) A number is divisible by 2 if it is __________ .

(d) If a number is divisible by _________ and __________ , it is divisible by 6.

(e) The only even prime number is ______________.

(f) There are ______________ composite numbers between 1 and 30.

(g) There are ______________ prime numbers between 1 and 50.

(h) Which is the greatest prime number less than 100 ? ______________.

3. Answer the following :

(a) Write the smallest prime number. ____________

(b) Write two consecutive prime numbers. ____________

(c) Write two prime numbers less than 7 which differ by 2. ____________

(d) Write two prime numbers less than 7 which differ by 3. ____________

(e) Express 44 as the sum of two prime numbers. ____________

Project Work

Conceptual Understanding

Write your birthday date 1 or 2-digit number:

Observe the following:

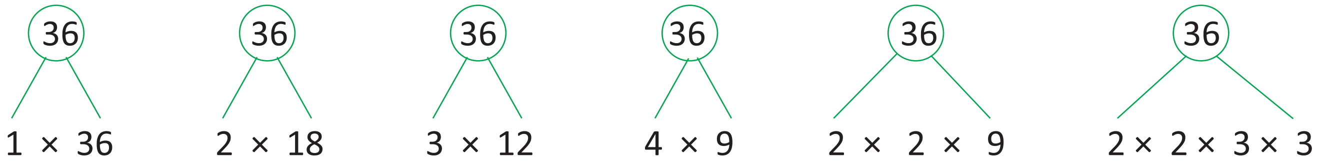
(a) Write it multiple factors.

(b) It is an even or odd numbers.

(c) It is prime number or composite number.

Prime Factorisation

There are several ways to factorise the number. Consider the factorisation of 36.



In the factorisation, find the factors which are prime.

We see that 2 × 2 × 3 × 3 is prime factorisation of 36.

A factorisation having each factor as prime is called the prime factorisation of the number.

Factorisation of a number ends when we reach a prime number, because a prime number cannot be factorised further.

Finding Prime Factors of a Number

We can find the prime factors of a number by the factor tree method or by division method.

Prime Factorisation by Factor Tree Method

Example 7: Find the prime factors of 12.

Solution : Proceed as follows:

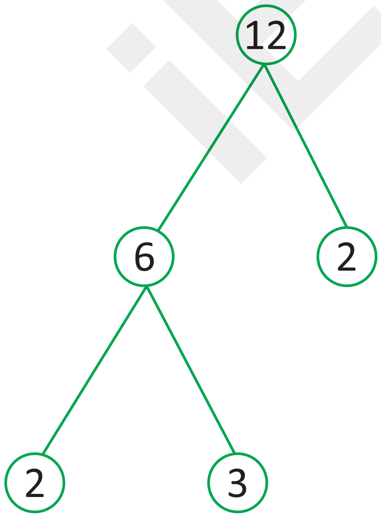
Step 1: Consider 12 as the base of the tree.

Step 2: Write one pair of factors: 2 × 6 = 12

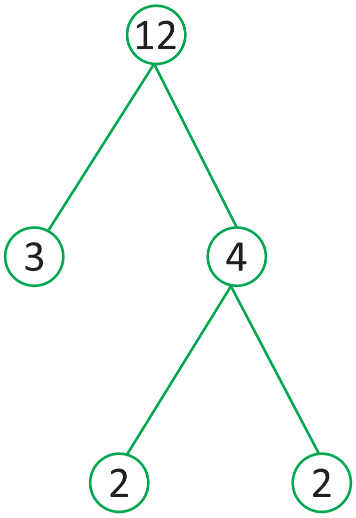
Step 3: Check for composite factors. 6 is a composite factor.

Step 4: Factorise the composite factor completely till the prime factor is reached, 2 × 3 = 6.

The prime factors of 12 can also be found by the following factor tree :



Prime factors of 12 = 2 × 2 × 3



Prime factors of 12 = 3 × 2 × 2

Prime Factorisation by Division Method

Working Rules

Step 1: Divide by the smallest prime number that divides without a remainder.

Step 2: Divide the quotient again by a prime number and repeat the process using only prime numbers till the quotient is 1.

Step 3: The product of all the prime number divisors is the answer.

Example 8: Find the prime factors of 24.

2	24
2	12
2	6
3	3
	1

The prime factors of

24 = 2 × 2 × 2 × 3

Example 9: Find the prime factors of 20.

2	20
2	10
5	5
	1

The prime factors of

20 = 2 × 2 × 5

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Finding LCM by Prime Factorisation

The LCM of two numbers is the product of the prime factors of both numbers taking the common factors only once.

Example 10 : Find the LCM of 12 and 30.

Solution:

Step 1: Find the prime factors of both the numbers. Always start with the smallest prime factor.

Step 2: Write the prime factors of both the numbers taking care to include their common prime factors only once.

2	12
2	6
3	3
	1

2	30
3	15
5	5
	1

$12 = \boxed{2} \text{ x } 2 \text{ x } \boxed{3}$

$30 = \boxed{2} \text{ x } \boxed{3} \text{ x } 5$

LCM = 2 x 2 x 3 x 5 = 60

{Taking the common prime factor only once}

Finding LCM by Common Division Method

In this method, we divide both numbers by a common factor and write the quotients below those numbers. Repeat this process till we get numbers having no common factors.The product of all the divisiors and the numbers left in the last row is the required LCM.

Example 11: Find the LCM of 12 and 30.

Solution:

2	12,	30
3	6,	15
	2,	5

LCM = 2 × 3 × 2 × 5 = 60

Example 12: Find the LCM of 12 and 32.

Solution:

$$\begin{array}{r|l} 2 & 12,\quad 32 \\ \hline 2 & 6,\quad 16 \\ \hline & 3,\quad 8 \end{array}$$

LCM = 2 × 2 × 3 × 8 = 96

REMEMBER

When the numbers cannot be divided by a common factor, we stop dividing.

Exercise 6.5

Knowledge Application

1. **Use the factor tree method to find the prime factors of the following numbers :**

   (a) 36 (b) 40 (c) 72 (d) 16

2. **Use the division method to find the prime factors of the following :**

   (a) 18 (b) 28 (c) 57 (d) 44 (e) 56

3. **Find the LMC of the following by prime factorisation method :**

   (a) 8, 12 (b) 24, 30 (c) 48, 72 (d) 15, 25, 30

   (e) 18, 54 (f) 60, 75, 120 (g) 12, 18, 36

4. **Find the LMC of the following by common division method :**

   (a) 15, 75 (b) 30, 50 (c) 8, 28 (d) 40, 60

Finding HCF by Prime Factorisation

Finding HCF (Highest Common Factor) of two or more numbers is the product of the common prime factors of the numbers.

Take a Task Watch Remedial

Example 13: Find the HCF of 14 and 28.

$$\begin{array}{r|l} 2 & 14 \\ \hline 7 & 7 \\ \hline & 1 \end{array} \qquad \begin{array}{r|l} 2 & 28 \\ \hline 2 & 14 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 14 &= 2 \times 7 \\ 28 &= 2 \times 2 \times 7 \\ \text{HCF} &= 2 \times 7 \\ &= 14 \end{aligned}$$

Finding HCF by Common Division Method

In this method, we divide both numbers by a common factor and write the quotients below those numbers. Repeat this process till we get numbers having no common factors.

The product of all the divisors is the required HCF.

Example 14: Find the HCF of 18 and 24.

Solution:

$$\begin{array}{r|l} 2 & 18,\ 24 \\ \hline 3 & 9,\ 12 \\ \hline & 3,\ 4 \end{array}$$

(The quotients cannot be divided further by a common prime factor.)

Thus, the HCF of 18 and 24 is 6.

Exercise 6.6

Knowledge Application

1. **Find the HCF of the following by prime factorisation method :**

   (a) 72 and 81 (b) 36 and 45 (c) 20 and 45 (d) 99 and 110
   (e) 18 and 48 (f) 24 and 30 (g) 64 and 80

2. **Find the HCF of the following numbers by common division method :**

   (a) 25 and 40 (b) 35 and 49 (c) 64 and 80 (d) 36 and 50
   (e) 100, 120 and 150 (f) 24, 36 and 48

3. **Find the LCM of the following by prime factorisation method :**

   (a) 8, 12 (b) 24, 30 (c) 48, 72 (d) 15, 25, 30
   (e) 18, 54 (f) 60, 75, 120 (g) 12, 18, 36

4. **Find the LCM of the following by common division method :**

   (a) 15, 75 (b) 30, 50 (c) 8, 28 (d) 40, 60

LET US SUMMARIZE

- ➢ The greatest factor of a number is the number itself.
- ➢ 1 is factor of every number.
- ➢ The multiples of a number are either greater than or equal to the number.
- ➢ A number which is a multiple of 2 is called an even number.
- ➢ A number which is not a multiple of 2 is called an odd number.
- ➢ All even numbers are divisible by 2.
- ➢ 1 has only one factor and that is itself. It is called a unique number.

Think Tank

Gap Analyzer™

1. **Tick (✓) the correct answer:**

   (a) The prime factorisation of 48 is :

   (i) 2 × 3 × 8 ☐ (ii) 4 × 2 × 6 ☐
   (iii) 2 × 2 × 2× 2 × 3 ☐ (iv) 1× 2 × 3 × 3 × 8 ☐

   (b) The LCM of 12 and 13 is :

   (i) 12 ☐ (ii) 13 ☐
   (iii) 12 × 13 ☐ (iv) None of these ☐

(c) The HCF of 2357 and 1 is :

(i) 2357 ☐ (ii) 1 ☐

(iii) 0 ☐ (iv) None of these ☐

2. Write down the first five multiples of the following :

(a) 9 _____ _____ _____ _____ _____

(b) 13 _____ _____ _____ _____ _____

(c) 23 _____ _____ _____ _____ _____

(d) 32 _____ _____ _____ _____ _____

Custom Learning Path

Scan to Create Your Own Learning Path

3. Match the following:

Column A	**Column B**
(a) 35	(i) Multiple of 8
(b) 15	(ii) Multiple of 7
(c) 16	(iii) Factor of 30
(e) 20	(iv) Factor of 50
(f) 25	(v) Factor of 20

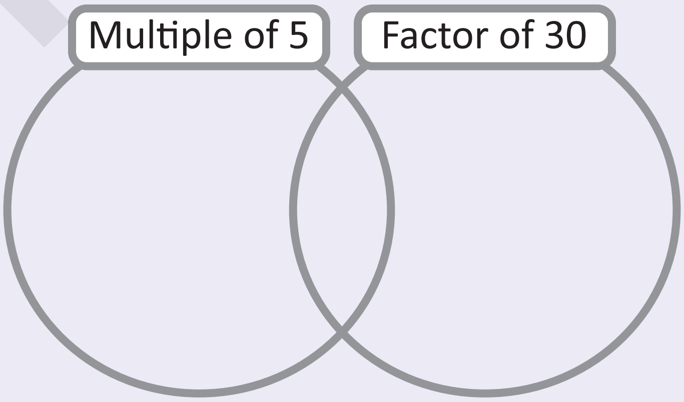
4. Find the prime factors of 30 and 56 using factor tree method.

Puzzle

Experiential Learning

Put the numbers in the correct place in the Venn diagram below.

1	10	35	12	2	3	60	5



Mental Math

Critical Thinking

Guess me:

1. I am a number between 220 and 230. I am divisible by 5. What number am I? ______________.
2. I am a number between 30 and 40. If you divide 75 or 183 by me the remainder is 3. Who am I? _________________.

Maths Lab Activity

Collaboration

Objective : To develop the idea of factorisation.

Materials Required: 20 marbles, 20 plastic plates, 1 blank paper, pencil.

Procedure:

1. Keep 1 marble in each plate.
   The number of plates required = 20. So, 20 ÷ 1 = 20.
2. Keep 2 marbles in each plate.
   The number of plates required = 10. So, 20 ÷ 2 = 10.
3. Keep 4 marbles in each plate.
   The number of plates required = 5. So, 20 ÷ 4 = 5.
4. Keep 5 marbles in each plate.
   The number of plates required = 4. So, 20 ÷ 5 = 4.
   So, the factors of 20 = 1, 2, 4, 5, 10 and 20.