CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: FACTORS AND PROPERTIES OF FACTORS, EXERCISE-10 A**

LEARNING OBJECTIVE

- **Enable the students to understand the concept of factors and properties of factors.**

FACTORS AND MULTIPLES

FACTORS

Let us recall the table of 5

5	×	1	=	5
5	×	2	=	10
5	×	3	=	15
5	×	4	=	20
5	×	5	=	25
5	×	6	=	30
5	×	7	=	35
5	×	8	=	40
5	×	9	=	45
5	×	10	=	50

When we multiply **2** numbers, each of the numbers being multiplied is called a factor of the product.

Here, 5 × 1 = **5** ; 5 × 4 = **20** ; etc.

Factor of 5 — Factor of 5 — Factor of 20 — Factor of 20

Similarly, 8 × 9 = 72. So, 8 and 9 are factors of 72.

Note :
1. For a number to be a factor of any number, it has to completely divide that number without leaving any remainder.
2. every number will have at least 2 factors, 1 and the number itself.

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FACTORS AND MULTIPLES

Properties of Factors

1. **1** is a factors of each number. Each number can be written as a product of **1** and the number itself.

Example: **15** = 1 × 15

36 = 1 × 36

17 = 1 × 17

FACTORS AND MULTIPLES

Properties of Factors

2. **1** is the only number which has only one factors.

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FACTORS AND MULTIPLES

Properties of Factors

3. A factors of a number (other than zero) is either less than or equal to the number itself.

For Example: **12 = 1 × 12**; **2 × 6**; **3 × 4**

So, factors of **12** are **1**, **2**, **3**, **4**, **6** and **12**.

1 is the smallest factors and the number itself is the greatest factors i.e. **12**. Therefore, a factor of a number is either less than or equal to itself.

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FACTORS AND MULTIPLES

Properties of Factors

Example: 1 Find all the factors of 30.

1 × **30** = 30

2 × **15** = 30

3 × **10** = 30

5 × **6** = 30

So, the factors of **30** are **1**, **2**, **3**, **5**, **6**, **10**, **15** and **30** itself.

FACTORS AND MULTIPLES

Properties of Factors

Example: 2 Is 9 a factor of 110?

Let us divide 110 by 9 =

```
        1  2
   ┌──────────
 9 │ 1  1  0
 -    9  ↓
   ──────────
   0  2  0
 -    1  8
   ──────────
      0  2
```

Since, 9 does not completely divide 110 and leaves 2 as a remainder, 9 is not a factor of 110.

FACTORS AND MULTIPLES

EXERCISE – 10(A)

1) Fill in the blanks.

(a) 5 × 6 = 30, **5** and **6** are factors of 30.

(b) 7 × 4 = 28, **7** and **4** are factors of 28.

(c) Factors of 15 are **1**, **3**, **5**, **15**.

(d) Factors of 49 are **1** and **7**, **49**.

(e) **1** is a factor of every number.

FACTORS AND MULTIPLES

EXERCISE – 10(A)

2) Tick (✓) the first number if it a factor of the second number:

(a) 7; 147 ✓. **(b)** 4; 264 ✓. **(c)** 4; 1728 ✓. **(d)** 5; 1055 ✓.

(e) 5; 17560 ✓. **(f)** 7; 2148 ✗. **(g)** 7; 3507 ✓. **(h)** 9; 216 ✓.

(i) 11; 10,825 ✗. **(j)** 11; 572 ✓. **(k)** 12; 847 ✗. **(l)** 37; 71344 ✗.

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FACTORS AND MULTIPLES

EXERCISE – 10(A)

3) List all the factors of the following numbers:

(a) 14 **1, 2, 7, 14**.

(b) 15 **1, 3, 5, 15**.

(c) 18 **1, 2, 3, 6, 9, 18**.

(d) 27 **1, 3, 9, 27**.

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FACTORS AND MULTIPLES

EXERCISE – 10(A)

3) List all the factors of the following numbers:

(e) 42 **1, 2, 3, 7, 21, 42** .

(f) 50 **1, 2, 5, 25, 50** .

(g) 64 **1, 2, 4, 8, 16, 32, 64** .

(h) 13 **1, 13** .

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FACTORS AND MULTIPLES

EXERCISE – 10(A)

3) List all the factors of the following numbers:

(i) 19 **1, 19** .

(j) 96 **1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 96** .

(k) 120 **1, 2, 3, 4, 5, 6, 8, 10, 12 , 15, 20, 24, 30, 40, 60, 120** .

(l) 72 **1, 2, 3, 4, 6, 8, 9, 12 , 18, 24, 36, 72** .

FACTORS AND MULTIPLES

EXERCISE – 10(A)

4) Write all the factors of 56. is 5 a factor of 56? Why?

The all factors of 56 = **1, 2, 4, 7, 8, 14, 28, 56**

As per rule, A number is divisible by **5** if its last digit (one's digit) is either **zero** or **5**

56 is not divisible by **5**, as **56** last digit is **6**.

So, **5** is not a factor of **56**.

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HOME ASSIGNMENT:

- **Complete Exercise – 10 A in your note book.**

LEARNING OUTCOME:

Students are able to understand the concept of factors and properties of factors.

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: PRIME AND COMPOSITE NUMBERS, EX-10 B**

LEARNING OBJECTIVE

- **Enable the students to understand about the concept of prime and composite numbers.**

FACTORS AND MULTIPLES

Composite Numbers

Composite numbers are the numbers having more than two factors i.e. other than **1** and the **number itself**.

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FACTORS AND MULTIPLES

Prime Numbers

A **prime number** is a number which has only two factors, namely **1** and the **number itself**.

These numbers are not completely divisible by any other number, except **1** and the **number itself**.

None : > 1 is not a prime number since it has only one factor, that it itself.

> 2 is the first even prime number.

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FACTORS AND MULTIPLES

Properties of Factors

Example: Separate the prime numbers and composite numbers from the following numbers : 7, 15, 2, 24, 19.

7 = 1 x 7	Factors of **7** are **1** and **7**.
15 = 1 x 7 and 3 x 5	Factors of **15** are **1**, **3**, **5**, and **15**.
2 = 1 x 2	Factors of **2** are **1** and **2**.
19 = 1 x 19	Factors of **19** are **1** and **19**.
24 = 1 x 24; 2 x 12; 3 x 8 and 4 x 6	Factors of **24** are **1**, **2**, **3**, **4**, **6**, **8**, **12**, and **24**.

Therefore, the prime numbers are **7**, **2** and **19** (have only two factors).

The composite numbers are **15** and **24** (having more than two factors).

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FACTORS AND MULTIPLES

EXERCISE – 10(B)

1) Classify the following numbers as prime or composite numbers.

(a) 18 **Composite number (1, 2, 3, 6, 9, 18,)**.

(b) 19 **Prime number (1, 19)**.

(c) 59 **Prime number (1, 59)**.

(d) 60 **Composite number (1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60)**.

(e) 23 **Prime number (1, 23)**.

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FACTORS AND MULTIPLES

EXERCISE – 10(B)

1) Classify the following numbers as prime or composite numbers.

(f) 25 Composite number (1, 5, 25).

(g) 47 Prime number (1, 47).

(h) 35 Composite number (1 , 5 , 7 , 35).

(i) 63 Composite number (1, 3, 7, 9, 21, 63).

(j) 31 Prime number (1, 31).

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FACTORS AND MULTIPLES

EXERCISE – 10(B)

3) Tick (✓) the prime number.

(a) 21 ✗ **(b)** 32 ✗ **(c)** 29 ✓ **(d)** 72 ✗

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FACTORS AND MULTIPLES

EXERCISE – 10(B)

4) Tick (✓) the composite number.

(a) 9 ✓ **(b)** 4 ✓ **(c)** 2 ✗ **(d)** 5 ✗

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FACTORS AND MULTIPLES

EXERCISE – 10(B)

5) Tick (✓) the greatest prime number.

(a) 87 ✗ **(b)** 29 ✗ **(c)** 67 ✓ **(d)** 51 ✗

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FACTORS AND MULTIPLES

EXERCISE – 10(B)

6) Tick (✓) the smallest composite number.

(a) 6 ✓ **(b)** 15 ✗ **(c)** 8 ✗ **(d)** 27 ✗

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FACTORS AND MULTIPLES

EXERCISE – 10(B)

7) Which of the following numbers is not a prime number?

(a) 63 — **Not a prime number**

(b) 17 — **a prime number**

(c) 29 — **a prime number**

(d) 47 — **a prime number**

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FACTORS AND MULTIPLES

EXERCISE – 10(B)

8) Which of the following numbers is an even prime number?

(a) 14 — **An even composite number**

(b) 7 — **Not an even prime number**

(c) 5 — **Not an even prime number**

(d) 2 — **An even prime number**

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FACTORS AND MULTIPLES

EXERCISE – 10(B)

9) Which of the following numbers is a composite number?

(a) 23 — **Not a composite number**

(b) 13 — **Not a composite number**

(c) 15 — **A composite number**

(d) 19 — **Not a composite number**

FACTORS AND MULTIPLES

EXERCISE – 10(B)

10) Which of the following numbers is a prime number?

(a) 63 — **Not a prime number**

(b) 72 — **Not a prime number**

(c) 74 — **Not a prime number**

(d) 37 — **A prime number**

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LEARNING OUTCOME:

Students are able to understand the concept of prime and composite numbers.

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: PRIME AND COMPOSITE NUMBERS, ACTIVITY, EX-10 B**

FACTORS AND MULTIPLES

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Activity

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

1 = Blue, Unique number

Prime number = Red

Composite number = Green

FACTORS AND MULTIPLES

EXERCISE – 10(B)

2) Colour the prime numbers in the following chart with your favourite colours.

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

LEARNING OUTCOME:

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Students are able to understand about prime and composite numbers.

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: PRIME FACTORS AND FACTORIZATION**

PRIME FACTORS

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A prime factor of a given number is a prime number that completely divides the given number.

Prime factors can be obtained by using **2** methods :

(1) **Factor tree method**

(2) **Prime factorization method**

PRIME FACTORS

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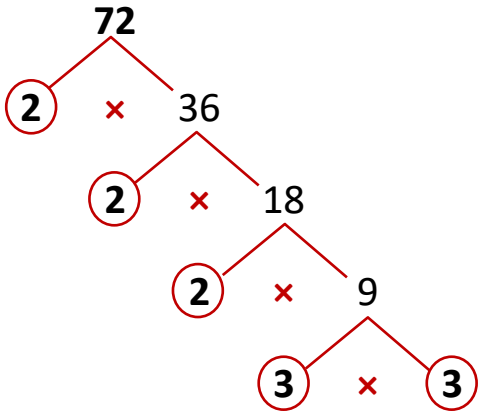
(1) Factor tree method

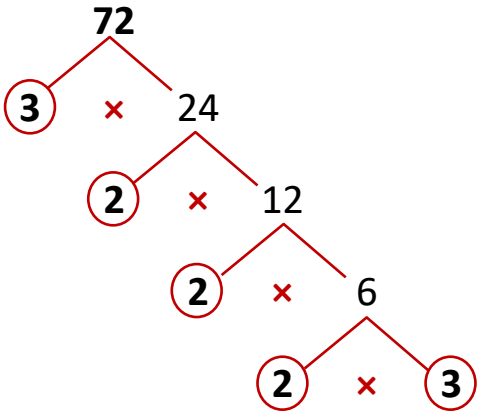
In factor tree method, we keep on breaking a number into **factors** until we get all **prime factors**. These **prime factors** are circled and written in the end to represent the number as their product.

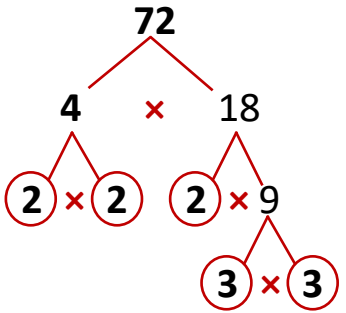
PRIME FACTORS

Example : 1

Find the prime factors of 72 using factor tree method.







Similarly, we can make factor trees of **96** by expressing **96** as a product of **6 × 12** and **8 × 9** but we will get the same prime factors.

So, 72 can be expressed as a product of its prime factors as follows :

72 = 2 × 2 × 2 × 3 × 3

PRIME FACTORS

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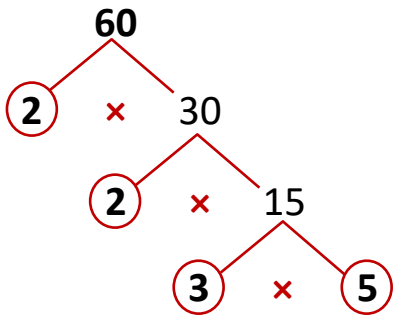
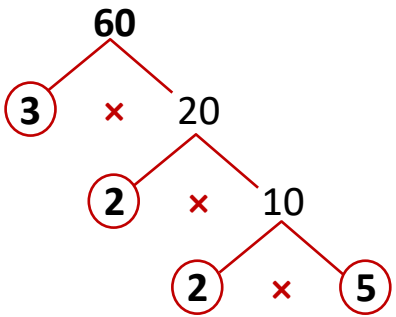
Example : 2

Find the prime factors of 60 using factor tree method.





60 can be expressed as a product of its prime factors as follows :

60 = 2 × 2 × 3 × 5

PRIME FACTORS

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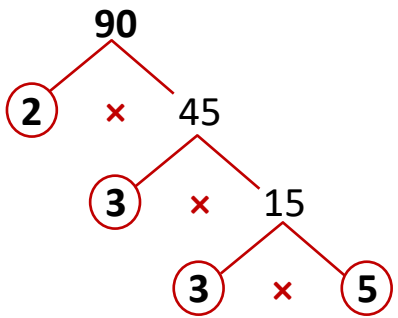
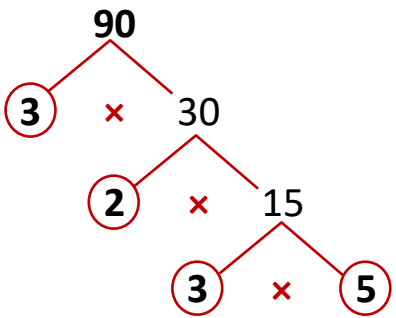
Example : 3

Find the prime factors of 90 using factor tree method.





90 can be expressed as a product of its prime factors as follows :

90 = 2 × 3 × 3 × 5

PRIME FACTORS

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(2) Prime factorization method

In this method we start dividing the number with its smallest prime factor and keep on dividing till we get 1 as a quotient. As it is difficult to make factor trees for larger numbers, this method is more useful and compact.

PRIME FACTORS

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Example : 1

Find the prime factors of 396 using prime factorization.

2	396
2	198
3	99
3	33
11	11
	1

396 ÷ 2 = 198
198 ÷ 2 = 99
99 ÷ 3 = 33
33 ÷ 3 = 11
11 ÷ 11 = 1 ← Quotient

∴ 396 = 2 × 2 × 3 × 3 × 11

Note : Every composite number can be expressed as a product of all its prime factors.

PRIME FACTORS

Example : 2

Find the prime factors of 234 using prime factorization.

2	234
3	117
3	39
13	13
	1

234 ÷ 2 = 117

117 ÷ 3 = 39

39 ÷ 3 = 13

13 ÷ 13 = 1 ← Quotient

∴ 234 = 2 × 3 × 3 × 13

PRIME FACTORS

Example : 3

Find the prime factors of 126 using prime factorization.

2	126
3	63
3	21
7	7
	1

126 ÷ 2 = 63

63 ÷ 3 = 21

21 ÷ 3 = 7

7 ÷ 7 = 1 ← Quotient

∴ 126 = 2 × 3 × 3 × 7

LEARNING OUTCOME:

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Students are able to understand about the prime factors and how to use the prime factors in the process of prime factorization.

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: MULTIPLES AND PROPERTIES OF MULTIPLES, EX-10 C**

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Multiples

5	×	5
5	×	10
5	×	15
5	×	20
5	×	25
5	×	30
5	×	35
5	×	40
5	×	45
5	×	50
0	=	

Here, **5**, **10**, **15**, **20**, **25 and so on** are all multiples of 5.

When we multiply **two given numbers**, their product is a multiple of **each of the numbers**.

For **example**,

Here, **5** × **6** = 30

- Here, 5 × 6 = 30
- Here, 5 × 6 = 30

Similarly, **4** × **7** = **28**. here, **28** is a multiple of both **4** and **7**.

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Properties of Multiples

1. The smallest multiple of a number is **the number itself**.

Properties of Multiples

2. Every number is a multiple of **1**.

Every number is a multiple of **itself**.

(e.g.) **1** × **15** = **15**. so, **15** is a multiple of **1** and **15**.

Properties of Multiples

3. **0** is a multiple of every number.

25 × **0** = **0**; **36** × **0** = **0**. **9** × **0** = **0**.

Thus, **0** is a multiple of every number.

Properties of Multiples

4. Every (**non-zero**) multiple of a whole number is either greater than or **equal** to the number. (e.g.) multiples of **6** are **6**, **12**, **18**, **24,…..**

The smallest multiples of **6** and the other multiples of **6** are greater than **6**.

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Properties of Multiples

5. Multiples of a number are infinite (i.e.) they carry **on** and **on**.

e.g. multiples of **20** are **20**, **40**, **60**, **80**, **…….**

MULTIPLES

Exercise 10(C)

1. Fill in the blanks :

(a) The multiples of a even number is always ____even____.

(b) The multiple of an ____odd____ number may be odd or even.

(c) ____0____ is the whole number which is a multiple of every number.

(d) Every number is multiple of ____1____ and ____itself____.

(e) The multiples of any number are ____infinite____.

MULTIPLES

Exercise 10(C)

1. Fill in the blanks :

(f) 18 is a multiple of 3 and _____6_____.

(g) 14 is a multiple of 2 and _____7_____.

(h) 15 is a multiple of 5 and _____3_____.

(i) The next multiple of 4 after 20 is _____24_____.

(j) The next multiple of 10 after 50 is _____60_____.

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MULTIPLES

Exercise 10(C)

2. Write the next six multiples of the following :

(a) 3, 6 **9**, **12**, **15**, **18**, **21**, **24**,

(b) 4, 8 **12**, **16**, **20**, **24**, **28**, **32**,

MULTIPLES

Exercise 10(C)

3. Find three common multiples of the following :

(a) 2 and 5 **10, 20, 30**.

(b) 3 and 4 **12, 24, 36**.

(c) 7 and 3 **21, 42, 63**.

(d) 10 and 4 **20, 40, 60**.

(e) 6 and 8 **24, 48, 72**.

(f) 5 and 7 **35, 70, 105**.

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MULTIPLES

Exercise 10(C)

4. Circle the numbers which are the multiples of 4 and cross (X) the multiples of 10. After that write the common multiples of 4 and 10 :

4	8	10	12	16	20	24	28	30	32
36	40	44	48	52	56	60	64	68	72
76	80	84	88	92	96	100			

Common multiples are : **20, 40, 60, 80, 100**.

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MULTIPLES

Exercise 10(C)

5. Circle the multiples of the given numbers :

6	6,	10,	18,	30,	32,	36,	40,
	48,	54,	60,	72			
3	18,	19,	21,	24,	28,	30,	31,
	34,	36,	39,	42			
11	22,	24,	28,	33,	44,	46,	51,
	55,	62,	66				
15	30,	45,	49,	50,	55,	60,	64,
	70,	75,	80,	85			

HOME ASSIGNMENT:

- **Complete Exercise – 10 (C)in your note book.**

LEARNING OUTCOME:

Students are able to understand the concept of multiples and their properties.

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: COMMON FACTORS AND HCF BY LISTING METHOD, EX-10 D Q.NO. 1**

LEARNING OBJECTIVE

- **Enable the students to understand about the common factors and HCF by listing method.**

COMMON FACTORS AND MULTIPLES

Common factors

Factors common to **2** or more numbers are said to be **common factors** for those numbers.

For example : **30** and **48** can both be divided by **2**. So, **2** is a common factors of **30** and **48**.

The **largest factor** that is **common** to all the given numbers is called the **highest common factor** (HCF) or **greater common factor** (GCF) of the given numbers :

HCF of **2** or more numbers can be found out by **2** methods:

HCF BY LISTING METHOD

Example :

> Find the HCF of 36 and 54 by listing method.

Step 1 : List all 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**

HCF BY LISTING METHOD

Example :

> Find the HCF of 36 and 54 by listing method.

Step 2 : Compare and circle the common 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**

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HCF BY LISTING METHOD

Example :

> Find the HCF of 36 and 54 by listing method.

Step 3 : Identify the highest common factor among the circled numbers.

Here, 18 is the last highest common factor among the circled numbers.

So, the HCF of 36 and 54 is 18.

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HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(a) 8 and 16.

Factors of 8 = **1, 2, 4, 8**

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

Here, **8** is the last highest common factor among the circled numbers.

So, the HCF of 8 and 16 is **8**.

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HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(b) 12 and 24.

Factors of 12 = **1, 2, 3, 4, 6, 12**

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

Here, **12** is the last highest common factor among the circled numbers.

So, the HCF of 12 and 24 is **12**.

HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(c) 24 and 36.

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

Factors of 36 = **1, 2, 3, 4, 6, 9, 12, 18, 36**

Here, **12** is the last highest common factor among the circled numbers.

So, the HCF of 24 and 36 is **12**.

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HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(d) 5 and 10.

Factors of 5 = **1,** **5**

Factors of 10 = **1,** **2,** **5,** **10**

Here, **5** is the last highest common factor among the circled numbers.

So, the HCF of 5 and 10 is **5**.

HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(e) 15 and 30.

Factors of 15 = **(1,)** **(3,)** **(5,)** **(15)**

Factors of 30 = **(1,)** **2,** **(3,)** **(5,)** **6,** **10,** **(15,)** **30**

Here, **15** is the last highest common factor among the circled numbers.

So, the HCF of 15 and 30 is **15**.

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HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(f) 4 and 6.

Factors of 4 = **(1,)** **(2,)** **4**

Factors of 6 = **(1,)** **(2,)** **3,** **6**

Here, **2** is the last highest common factor among the circled numbers.

So, the HCF of 4 and 6 is **2**.

HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(g) 54 and 72.

Factors of 54 = **1, 2, 3, 6, 9, 18, 27, 54**

Factors of 72 = **1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72**

Here, **18** is the last highest common factor among the circled numbers.

So, the HCF of 54 and 72 is **18**.

HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(h) 56 and 70.

Factors of 56 = **(1,) (2,) 4, (7,) 8, (14,) 28, 56**

Factors of 70 = **(1,) (2,) 5, (7,) 10, (14,) 35, 70**

Here, **14** is the last highest common factor among the circled numbers.

So, the HCF of 56 and 70 is **14**.

HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(i) 23 and 25.

Factors of 23 = (1,) **23**

Factors of 25 = (1,) **5,** **25**

Here, **1** is the last highest common factor among the circled numbers.

So, the HCF of 23 and 25 is **1**.

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HCF BY LISTING METHOD

Exercise 10(D)

1. Find the HCF of the following:

(j) 42 and 56.

Factors of 42 = **(1,) (2,) 3, 6, (7,) (14,) 21, 42**

Factors of 56 = **(1,) (2,) 4, (7,) 8, (14,) 28, 56**

Here, **14** is the last highest common factor among the circled numbers.

So, the HCF of 42 and 56 is **14**.

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HOME ASSIGNMENT:

- **Complete Exercise – 10(D) Q.NO. 1 in your note book.**

LEARNING OUTCOME:

Students are able to understand the common factors and HCF by listing method.

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: HCF BY PRIME FACTORIZATION METHOD, EX-10 D Q.NO. 2**

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PRIME FACTORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(a) 8 and 12.

2	8
2	4
	2

2	12
2	6
	3

$8 = \mathbf{2} \times \mathbf{2} \times \mathbf{2}$

$12 = \mathbf{2} \times \mathbf{2} \times \mathbf{3}$

HCF $= \mathbf{2} \times \mathbf{2} = \mathbf{4}$

PRIME FACTORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(b) 124, 168 and 210.

2	124
2	62
	31

2	168
2	84
2	42
3	21
	7

2	210
3	105
5	35
	7

$124 = 2 \times 2 \times 31$

$168 = 2 \times 2 \times 2 \times 3 \times 7$

$210 = 2 \times 3 \times 5 \times 7$

HCF = **2**

PRIME FACTORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(c) 96, 112 and 108.

2	96
2	48
2	24
2	12
2	6
	3

2	112
2	56
2	28
2	14
	7

2	108
2	54
3	27
3	9
	3

$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

$112 = 2 \times 2 \times 2 \times 2 \times 7$

$108 = 2 \times 2 \times 3 \times 3 \times 3$

HCF $= 2 \times 2 = 4$

PRIME FACTORORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(d) 7 and 98.

7

7	98
7	14
	2

$7 = \mathbf{7}$

$98 = \mathbf{7} \times \mathbf{7} \times \mathbf{2}$

HCF = **7**

PRIME FACTORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(e) 108 and 144.

2	108
2	54
3	27
3	9
	3

2	144
2	72
3	36
3	12
2	4
	2

$108 = 2 \times 2 \times 3 \times 3 \times 3$

$144 = 2 \times 2 \times 3 \times 3 \times 2 \times 2$

HCF $= 2 \times 2 \times 3 \times 3 = 36$

PRIME FACTORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(f) 40, 50 and 64.

2	40
2	20
2	10
	5

2	50
5	25
	5

2	64
2	32
2	16
2	8
2	4
	2

$40 = 2 \times 2 \times 2 \times 5$

$50 = 2 \times 5 \times 5$

$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$

HCF = 2

PRIME FACTORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(g) 14, 56 and 98.

2	14
	7

2	56
7	28
2	4
	2

2	98
7	49
	7

$14 = 2 \times 7$

$56 = 2 \times 7 \times 2 \times 2$

$98 = 2 \times 7 \times 7$

HCF $= 2 \times 7 = 14$

PRIME FACTORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(h) 16 and 48.

2	16
2	8
2	4
	2

2	48
2	24
2	12
2	6
	3

16 = **2** × **2** × **2** × **2**

48 = **2** × **2** × **2** × **2** × **3**

HCF = **2** × **2** × **2** × **2** = **16**

PRIME FACTORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(i) 15 and 20.

5	15
	3

5	20
2	4
	2

15 = **5** × **3**

20 = **5** × **2** × **2**

HCF = **5**

PRIME FACTORIZATION

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Exercise 10(D)

2. Find the HCF of the following by prime factorization method:

(j) 112, 210 and 260.

2	112
2	56
2	28
2	14
	7

2	210
3	105
5	35
	7

2	260
2	130
5	65
	13

$112 = 2 \times 2 \times 2 \times 2 \times 7$

$210 = 2 \times 3 \times 5 \times 7$

$260 = 2 \times 2 \times 5 \times 13$

HCF = 2

HOME ASSIGNMENT:

- **Complete Exercise – 10(D) Q.NO. 2 in your note book.**

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: HCF BY COMMON DIVISION METHOD, EX-10 D Q.NO. 3**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(a) 40 and 60.

2	40, 60
2	20, 30
5	10, 15
	2, 3

Hence, the common factors are **2** , **2** , **5**

HCF of 40 and 60 = **2** × **2** × **5** = **20**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(b) 45 and 225.

5	45, 225
3	9, 45
3	3, 15
	1, 5

Hence, the common factors are **5** , **3** , **3**

HCF of 45 and 225 = **5** × **3** × **3** = **45**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(c) 21, 63 and 189.

3	21, 63, 189
7	7, 21, 63
	1, 3, 9

Hence, the common factors are **3** , **7**

HCF of 21, 63 and 189 = **3** × **7** = **21**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(d) 87 and 145.

29	87, 145
	3, 5

Hence, the common factors are **29**

HCF of 87 and 145 = **29**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(e) 14 and 28.

2	14, 28
7	7, 14
	1, 2

Hence, the common factors are **2** , **7**

HCF of 14 and 28 = **2** × **7** = **14**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(f) 144, 252 and 228.

2	144, 252, 228
2	72, 126, 114
3	36, 63, 57
	12, 21, 19

Hence, the common factors are **2** , **2** , **3**

HCF of 144, 252 and 228 = **2** × **2** × **3** = **12**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(g) 125, 175 and 225.

5	125, 175, 225
5	25, 35, 45
	5, 7, 9

Hence, the common factors are **2** , **5**

HCF of 125, 175 and 225 = **2** × **5** = **10**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(h) 27 and 162.

3	27, 162
3	9, 54
3	3, 18
	1, 6

Hence, the common factors are **3** , **3** , **3**

HCF of 27 and 162 = **3** × **3** × **3** = **27**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(i) 69 and 92.

23	69, 92
	3, 4

Hence, the common factors are **23**

HCF of 69 and 92 = **23**

HCF BY COMMON DIVISION METHOD

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Exercise 10(D)

3. Find the HCF of the following by common division method:

(j) 96, 144 and 168.

2	96, 144, 168
2	48, 72, 84
2	24, 36, 42
3	12, 18, 21
	4, 6, 7

Hence, the common factors are **2** , **2** , **2** , **3**

HCF of 125, 175 and 225 = **2** × **2** × **2** × **3** = **24**

HOME ASSIGNMENT:

- **Complete Exercise – 10(D) Q.NO. 3 in your note book.**

LEARNING OUTCOME:

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Students are able to understand the process of common division method to find HCF.

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CLASS	**: IV**
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SUBTOPIC	**: COMMON MULTIPLES AND LISTING METHOD, EX-10 E Q.NO. 1**

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COMMON MULTIPLES

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When a particulars is a multiple of 2 or more numbers, it is called a **common multiple**.

COMMON MULTIPLES

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Example : Find the common multiples of 2 and 4.

Solution : Multiples of **2** = 2, 4, 6, 8, 10, 12,…….

Multiples of **4** = 4, 8, 12, 16, 20, 24, ……

Multiples that are common to both the numbers are **4**, **8**, **12……**

COMMON MULTIPLES

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Least common multiples (**LCM**) is the smallest common multiple of the given numbers. In the example below, there is no common multiple of **5** and **6** which comes before **30**. so, we say that **30** if the **LCM** of **5** and **6**.

COMMON MULTIPLES

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Example : Find the common multiples of 5 and 6.

Solution : Multiples of **5** = 5, 10, 15, 20, 25, 30, 35,…….

Multiples of **6** = 6, 12, 18, 24, 30, 36,……

We can say that **30** is a common multiple of **5** and **6**

COMMON MULTIPLES

LCM by listing method:

In this method, we list the first few multiples of the given numbers. Then we circle the **common multiples** and identify the lest **common multiple** of the given numbers among the circled ones.

COMMON MULTIPLES

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LCM by listing method:

Example : Find the LCM of 12, 15 and 20.

Solution : **Step 1 :** list the multiples of each number.

Multiples of **12** = 12, 24, 36, 48, 60, 72, 84, 96, 108, 120

Multiples of **15** = 15, 30, 45, 60, 75, 90, 105, 120, 135

Multiples of **20** = 20, 40, 60, 80, 100, 120, 140, 160

COMMON MULTIPLES

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LCM by listing method:

Example : Find the LCM of 12, 15 and 20.

Solution : **Step 2 :** Circle the common multiples of 12, 15 and 20.

Multiples of **12** = 12, 24, 36, 48, 60, 72, 84, 96, 108, 120

Multiples of **15** = 15, 30, 45, 60, 75, 90, 105, 120, 135

Multiples of **20** = 20, 40, 60, 80, 100, 120, 140, 160

COMMON MULTIPLES

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LCM by listing method:

Example : Find the LCM of 12, 15 and 20.

Solution : **Step 3 :** identify the least common multiples among the circled numbers.

Multiples of **12** = 12, 24, 36, 48, (60), 72, 84, 96, 108, (120)

Multiples of **15** = 15, 30, 45, (60), 75, 90, 105, (120), 135

Multiples of **20** = 20, 40, (60), 80, 100, (120), 140, 160

Here, **60** is the first common multiple of **12**, **15** and **20**.

So, LCM of **12**, **15** and **20** is **60**.

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(a) **2** and **6**.

Multiples of **2** = 2, 4, 6

Multiples of **6** = 6, 12, 18

Here, **6** is the first common multiple of **2** and **6**.

So, LCM of **2** and **6** is **6**.

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(b) **4** and **12**.

Multiples of **4** = 4, 8, 12

Multiples of **12** = 12, 24, 36

Here, **12** is the first common multiple of **4** and **12**.

So, LCM of **4** and **12** is **12**.

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(c) **5** and **3**.

Multiples of **5** = 5, 10, (15)

Multiples of **3** = 3, 6, 9, 12, (15)

Here, **15** is the first common multiple of **5** and **3**.

So, LCM of **5** and **3** is **15**.

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(d) **3** and **9**.

Multiples of **3** = 3, 6, 9

Multiples of **9** = 9, 18, 27

Here, **9** is the first common multiple of **3** and **9**.

So, LCM of **3** and **9** is **9**.

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(e) **10** and **20**.

Multiples of **10** = 10, 20, 30

Multiples of **20** = 20, 40, 60

Here, **20** is the first common multiple of **10** and **20**.

So, LCM of **10** and **20** is **20**.

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(f) **6** and **4**.

Multiples of **6** = 6, 12, 18

Multiples of **4** = 4, 8, 12

Here, **12** is the first common multiple of **6** and **4**.

So, LCM of **6** and **4** is **12**.

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(g) **4** and **18**.

Multiples of **4** = 4, 8, 12, 16,
20, 24, 28, 32, 36

Multiples of **18** = 18, 36, 54

So, LCM of **4** and **18** is **36** .

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(h) **4** and **6**.

Multiples of **4** = 4, 8, 12

Multiples of **6** = 6, 12, 18

Here, **12** is the first common multiple of **4** and **6**.

So, LCM of **4** and **6** is **12**.

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(i) **16** and **8**.

Multiples of **16** = 16, 32, 48

Multiples of **8** = 8, 16, 24

Here, **16** is the first common multiple of **16** and **8**.

So, LCM of **16** and **8** is **16**.

COMMON MULTIPLES

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Exercise 10(E)

1. Find the LCM of the given numbers by listing method. (up to first three multiples).

(j) **9** and **12**.

Multiples of **9** = 9, 18, 27, 36

Multiples of **12** = 12, 24, 36

Here,.

So, LCM of **9** and **12** is **36**.

HOME ASSIGNMENT:

- **Complete Exercise – 10(E) Q.NO. 1 in your note book.**

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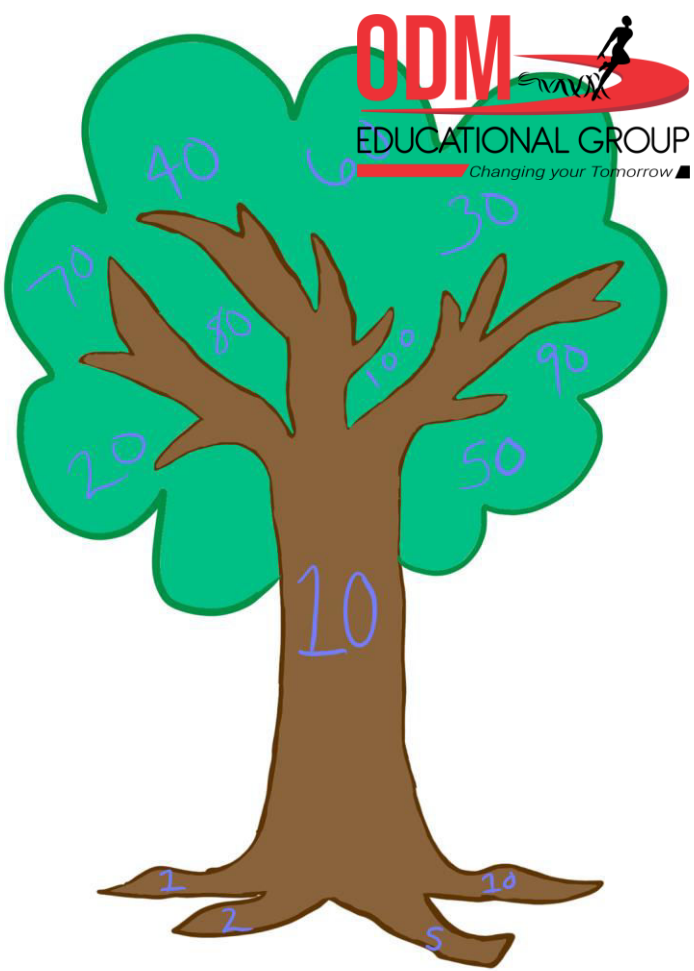
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: LCM BY PRIME FACTORISATION METHOD, EXAMPLES AND EXERCISE-10 E Q.NO. 2**

COMMON MULTIPLES

LCM by Prime factorization method:

To find the **LCM** of two or more numbers, we first find all the **prime factors** of the given numbers and write them one below the other. Take one **factor** from each common group of **factors** and find their product. Multiply the product with other ungrouped **factors**. The resultant is the **LCM** of given numbers.



COMMON MULTIPLES

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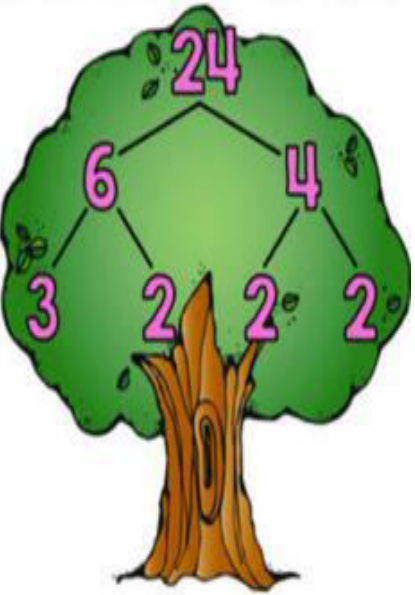
LCM by Prime factorization method :

Example : 1 Find the LCM of 9 and 15.

Solution :

$$\begin{array}{r|l} 3 & 9 \\ \hline & 3 \end{array} \qquad \begin{array}{r|l} 3 & 15 \\ \hline & 5 \end{array}$$



$9 = 3 \times 3$

$15 = 3 \times 5$

LCM $= 3 \times 3 \times 5 = 45$

COMMON MULTIPLES

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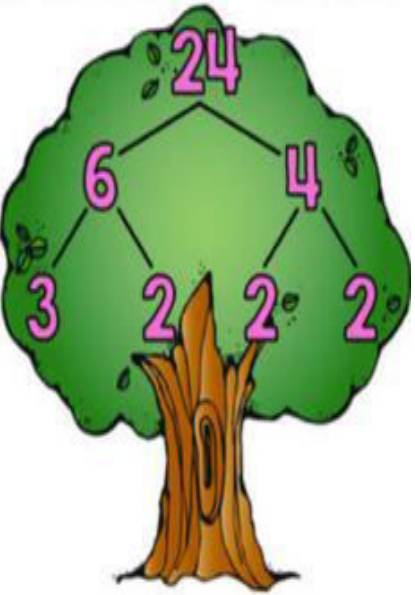
LCM by Prime factorization method :

Example : 2 Find the LCM of 16 and 28.

Solution :

2	16
2	8
2	4
	2

2	28
2	14
	7



16 = 2 × 2 × 2 × 2

28 = 2 × 2 × 7

LCM = 2 × 2 × 2 × 2 × 7 = 112

COMMON MULTIPLES

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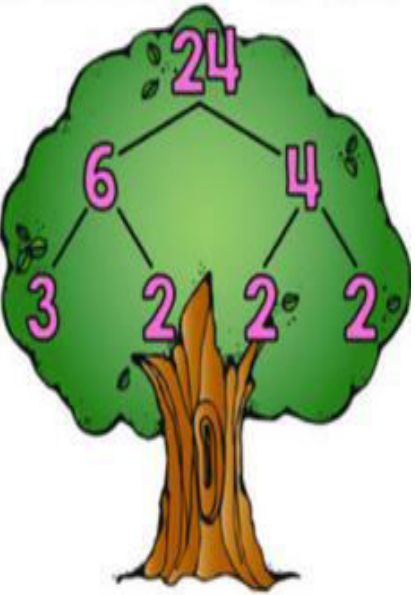
LCM by Prime factorization method :

Example : 3 Find the LCM of 32, 48 and 72.

Solution :



2	32
2	16
2	8
2	4
	2

2	48
2	24
2	12
2	6
	3

2	72
2	36
2	18
3	9
	3

32 = 2 × 2 × 2 × 2 × 2

48 = 2 × 2 × 2 × 2 × 3

72 = 2 × 2 × 2 × 3 × 3

LCM = 2 × 2 × 2 × 2 × 3 × 2 × 3 = **288**

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(a) **16** and **48**.

2	16
2	8
2	4
	2

2	48
2	24
2	12
2	6
	3

$16 = 2 \times 2 \times 2 \times 2$

$48 = 2 \times 2 \times 2 \times 2 \times 3$

LCM = $2 \times 2 \times 2 \times 2 \times 3 = 48$

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(b) **8, 12** and **16**.

2	8
2	4
	2

2	12
2	6
	3

2	16
2	8
2	4
	2

$8 = 2 \times 2 \times 2$

$12 = 2 \times 2 \times 3$

$16 = 2 \times 2 \times 2 \times 2$

LCM $= 2 \times 2 \times 2 \times 3 \times 2 = 48$

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(c) **20** and **25**.

2	20
2	10
	5

5	25
	5

20 = **2** × **2** × **5**

25 = **5** × **5**

LCM = **2** × **2** × **5** × **5** = **100**

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(d) **40** and **50**.

2	40
2	20
2	10
	5

2	50
5	25
	5

$40 = 2 \times 2 \times 2 \times 5$

$50 = 2 \times 5 \times 5$

LCM $= 2 \times 2 \times 2 \times 5 \times 5 = 200$

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(e) **56** and **64**.

2	56
2	28
2	14
	7

2	64
2	32
2	16
2	8
2	4
	2

56 = 2 × 2 × 2 × 7

64 = 2 × 2 × 2 × 2 × 2 × 2

LCM = 2 × 2 × 2 × 7 × 2 × 2 × 2 = 448

LEARNING OUTCOME:

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Students are able to understand how to find out the LCM by using prime factorization method.

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: LCM BY PRIME FACTORIZATION METHOD, EXERCISE-10 E Q.NO. 2**

COMMON MULTIPLES

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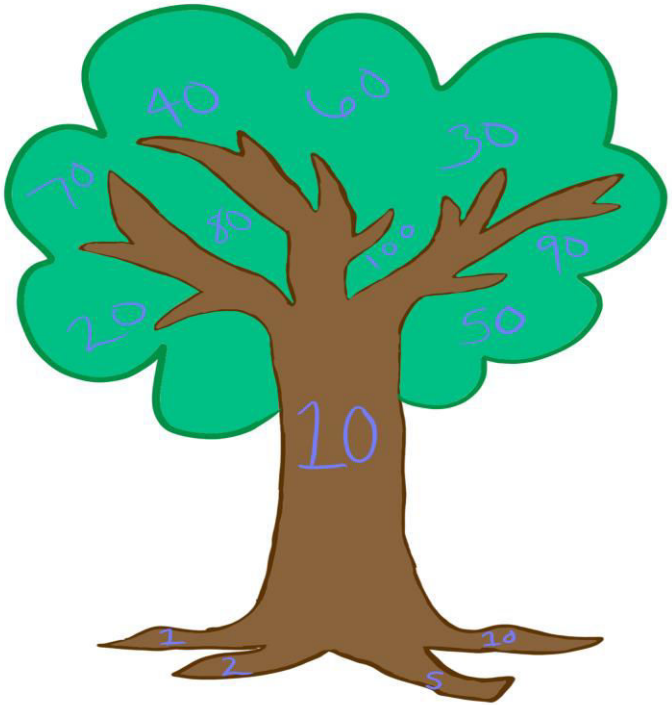
LCM by Prime factorization method:

To find the **LCM** of two or more numbers, we first find all the **prime factors** of the given numbers and write them one below the other. Take one **factor** from each common group of **factors** and find their product. Multiply the product with other ungrouped **factors**. The resultant is the **LCM** of given numbers.



COMMON MULTIPLES

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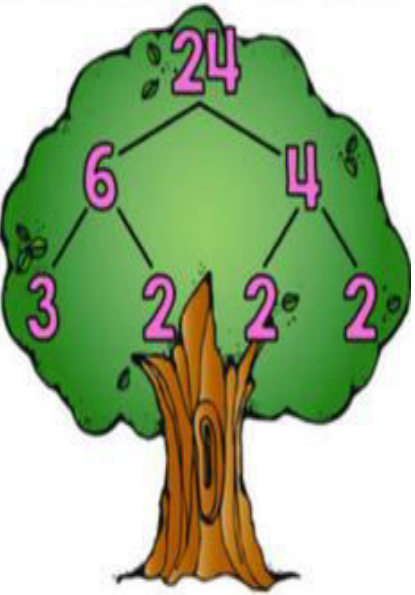
LCM by Prime factorization method :

Example : 1 Find the LCM of 9 and 15.

Solution :

$$\begin{array}{r|l} 3 & 9 \\ \hline & 3 \end{array} \qquad \begin{array}{r|l} 3 & 15 \\ \hline & 5 \end{array}$$



$9 = 3 \times 3$

$15 = 3 \times 5$

LCM $= 3 \times 3 \times 5 = 45$

COMMON MULTIPLES

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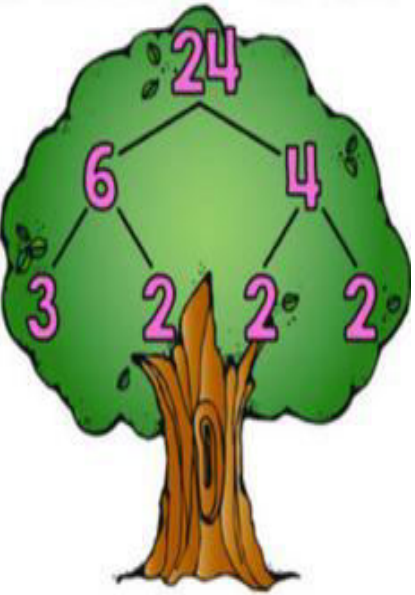
LCM by Prime factorization method :

Example : 2 Find the LCM of 16 and 28.

Solution :

2	16
2	8
2	4
	2

2	28
2	14
	7



16 = 2 × 2 × 2 × 2

28 = 2 × 2 × 7

LCM = 2 × 2 × 2 × 2 × 7 = 112

COMMON MULTIPLES

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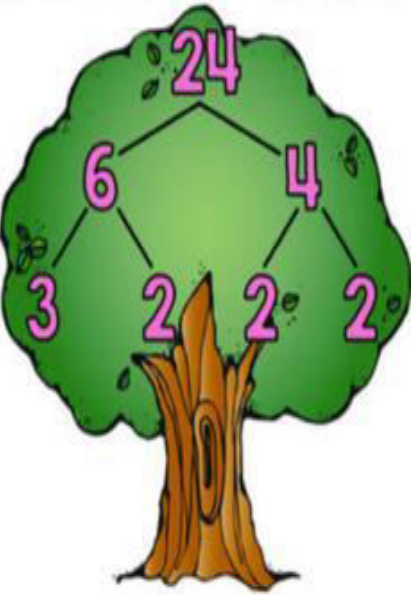
LCM by Prime factorization method :

Example : 2 Find the LCM of 32, 48 and 72.

Solution :



2	32
2	16
2	8
2	4
	2

2	48
2	24
2	12
2	6
	3

2	72
2	36
2	18
3	9
	3

32 = 2 × 2 × 2 × 2 × 2

48 = 2 × 2 × 2 × 2 × 3

72 = 2 × 2 × 2 × 3 × 3

LCM = 2 × 2 × 2 × 2 × 3 × 2 × 3 = **288**

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(f) **96** and **144**.

2	96
2	48
2	24
2	12
2	6
	3

2	144
2	72
2	36
2	18
3	9
	3

$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

$144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$

LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 288$

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(g) **36** and **42**.

2	36
2	18
3	9
	3

2	42
3	21
	7

36 = **2** × **2** × **3** × **3**

42 = **2** × **3** × **7**

LCM = **2** × **2** × **3** × **3** × **7** = **252**

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(h) **21** and **36**.

3	21
	7

3	36
2	12
2	6
	3

$21 = 3 \times 7$

$36 = 3 \times 2 \times 2 \times 3$

LCM $= 3 \times 7 \times 2 \times 2 \times 3 = 252$

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(i) **15** and **45**.

3	15
	5

3	45
5	15
	3

15 = **3** × **5**

45 = **3** × **5** × **3**

LCM = **3** × **5** × **3** = **45**

COMMON MULTIPLES

Exercise 10(E)

2. Find the LCM of the given numbers by prime factorisation method

(j) **10, 20** and **30**.

2	10
	5

2	20
5	10
	2

2	30
5	15
	3

10 = 2 × 5

20 = 2 × 5 × 2

30 = 2 × 5 × 3

LCM = 2 × 5 × 2 × 3 = 60

LEARNING OUTCOME:

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Students are able to understand how to find out the LCM by using prime factorization method..

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: LCM BY COMMON DIVISION METHOD, EXERCISE-10 E Q.NO.3**

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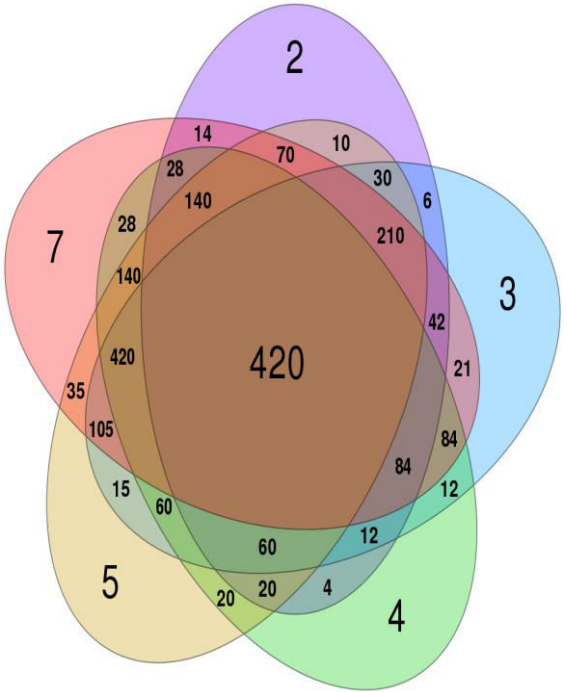
COMMON MULTIPLES

LCM by Common Division Method:

In this method, we start by dividing at least one of the given numbers by the smallest **prime number**. Bring down the numbers that are indivisible as it is. Keep on reporting the method till all the quotients are **1** in the last row. Then, multiply all the **prime numbers** to get the **LCM** of the given numbers.

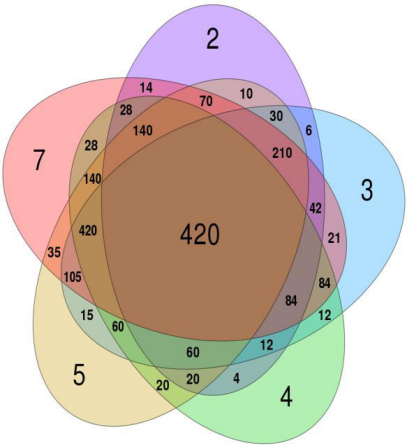


COMMON MULTIPLES

LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :



	16, 24, 30

Step 1 : Write all the numbers in a row, separate by commas.

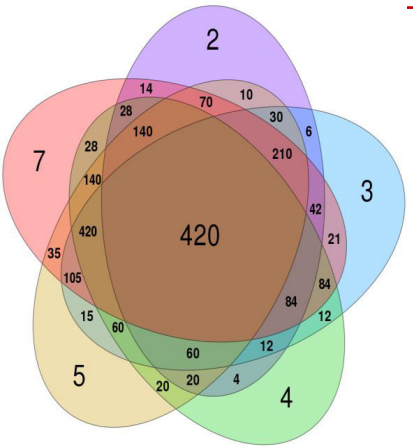
COMMON MULTIPLES

LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :

2	16, 24, 30
	8, 12, 15



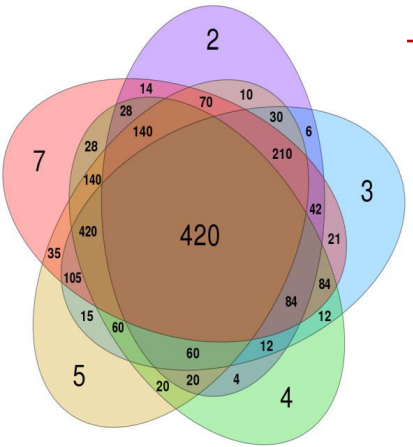
Step 2 : Choose the **smallest prime number** that divides any one of the given numbers..

COMMON MULTIPLES

LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :



2	16, 24, 30
2	8, 12, 15
2	4, 6, 15

Step 3 : Keep on dividing the **numbers** by the **smallest prime numbers** and bring the indivisible numbers down as it is.

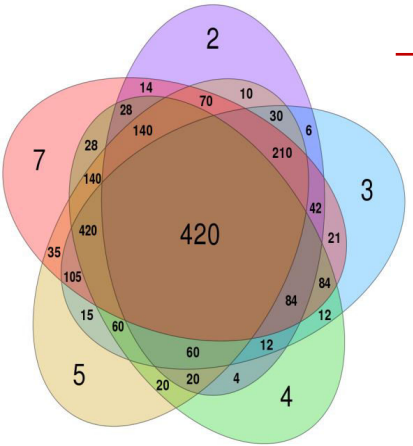
COMMON MULTIPLES

LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :

2	16, 24, 30
2	8, 12, 15
2	4, 6, 15
3	2, 3, 15
	2, 1, 5



Step 4 : Repeat till you get all ones (**1**) in the last row.

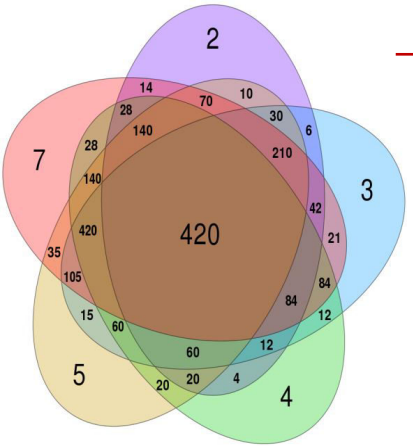
COMMON MULTIPLES

LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :

2	16, 24, 30
2	8, 12, 15
2	4, 6, 15
3	2, 3, 15
	2, 1, 5



Step 5 : Multiply all the **prime numbers** on the left to get the **LCM** of **16**, **24** and **30**.

So, LCM of 16, 24 and 30 is
2 × **2** × **2** × **2** × **3** × **5** = **240**.

COMMON MULTIPLES

Exercise 10(E)

3. Find the LCM of the given numbers by common division method

(a) **6, 36**

Solution:

2	6, 36
3	3, 18
3	1, 6
	1, **2**

So, LCM of 6 and 36 is
2 × **3** × **3** × **2** = **36**.

COMMON MULTIPLES

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Exercise 10(E)

3. Find the LCM of the given numbers by common division method

(b) **25, 10**

Solution:

5	25, 10
	5, 2

So, LCM of 25 and 10 is
5 × **5** × **2** = **50**.

COMMON MULTIPLES

Exercise 10(E)

3. Find the LCM of the given numbers by common division method

(c) 45, 27

Solution:

3	45, 27
3	15, 9
	5, 3

So, LCM of 45 and 27 is

3× **3** × **5** × **3** = **135**.

COMMON MULTIPLES

Exercise 10(E)

3. Find the LCM of the given numbers by common division method

(d) **42, 49**

Solution:

7	42, 49
2	6, 7
	3, 7

So, LCM of 42 and 49 is
7 × **2** × **3** × **7** = **294**.

COMMON MULTIPLES

Exercise 10(E)

3. Find the LCM of the given numbers by common division method

(e) 32, 64

Solution:

2	32, 64
2	16, 32
2	8, 16
2	4, 8
2	2, 4
	1, **2**

So, LCM of 32 and 64 is

2 × **2** × **2** × **2** × **2** × **2** = **64**.

LEARNING OUTCOME:

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Students are able to understand how to find the LCM by using common division method.

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CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: LCM BY COMMON DIVISION METHOD, EX-10 E Q.NO.3**

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COMMON MULTIPLES

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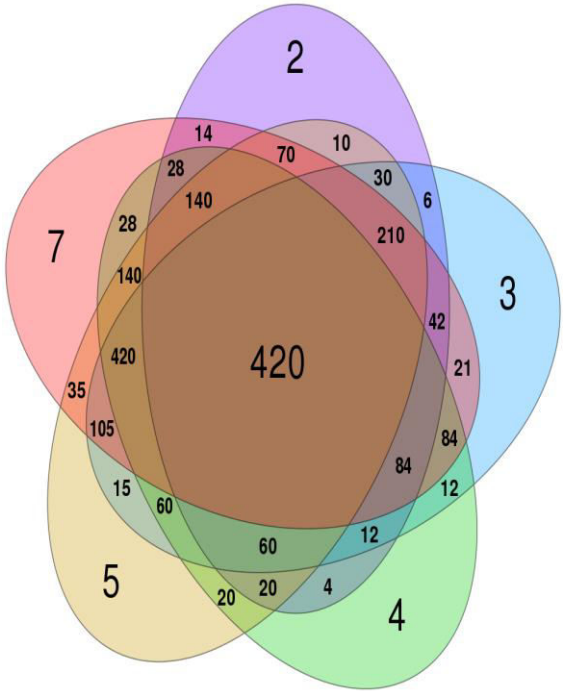
LCM by Common Division Method:

In this method, we start by dividing at least one of the given numbers by the smallest **prime number**. Bring down the numbers that are indivisible as it is. Keep on reporting the method till all the quotients are **1** in the last row. Then, multiply all the **prime numbers** to get the **LCM** of the given numbers.



COMMON FACTORS AND MULTIPLES

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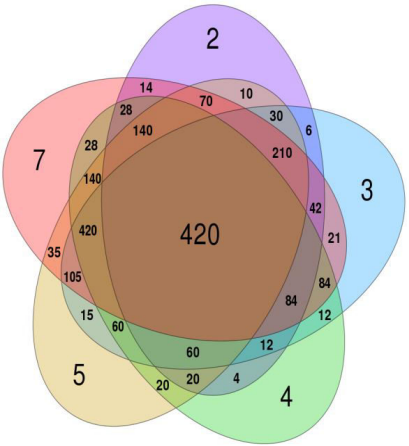
LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :



	16, 24, 30

Step 1 : Write all the numbers in a row, separate by commas.

COMMON FACTORS AND MULTIPLES

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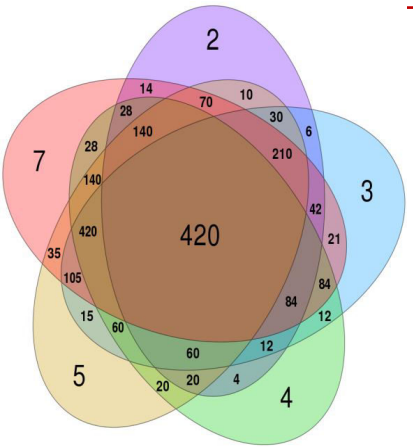
LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :

2	16, 24, 30
	8, 12, 15



Step 2 : Choose the **smallest prime number** that divides any one of the given numbers..

COMMON FACTORS AND MULTIPLES

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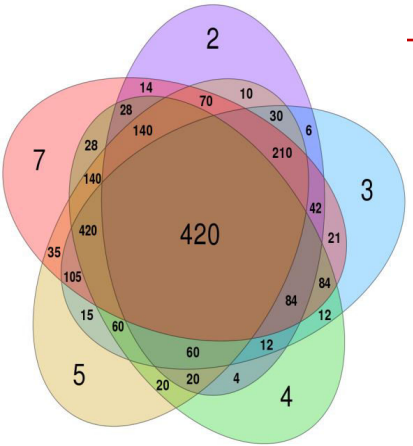
LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :



2	16, 24, 30
2	8, 12, 15
2	4, 6, 15

Step 3 : Keep on dividing the **numbers** by the **smallest prime numbers** and bring the indivisible numbers down as it is.

COMMON FACTORS AND MULTIPLES

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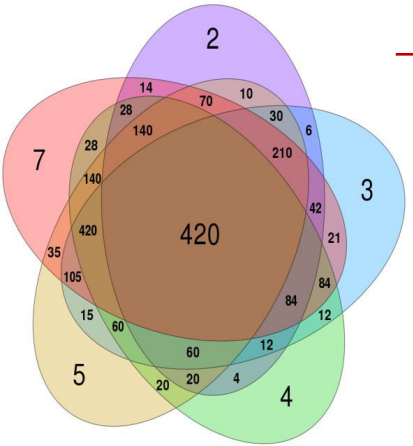
LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :

2	16, 24, 30
2	8, 12, 15
2	4, 6, 15
3	2, 3, 15
	2, 1, 5



Step 4 : Repeat till you get all ones (**1**) in the last row.

COMMON FACTORS AND MULTIPLES

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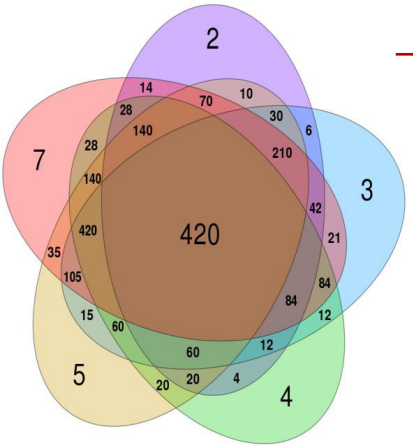
LCM by Common Division Method

Example : 1 Find the LCM of 16, 24 and 30.

Solution :

2	16, 24, 30
2	8, 12, 15
2	4, 6, 15
3	2, 3, 15
	2, 1, 5



Step 5 : Multiply all the **prime numbers** on the left to get the **LCM** of **16**, **24** and **30**.

So, LCM of 16, 24 and 30 is
2 × **2** × **2** × **2** × **3** × **5** = **240**.

COMMON MULTIPLES

Exercise 10(E)

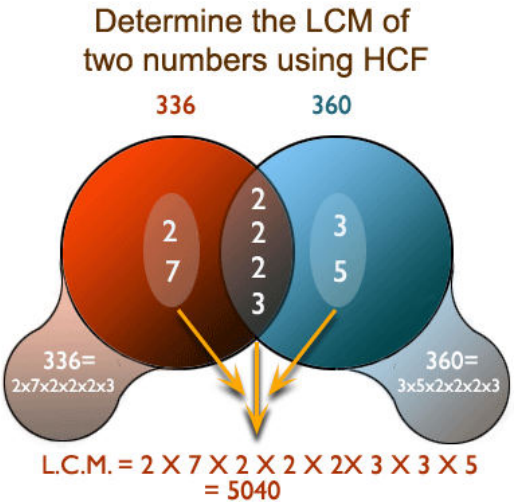
3. Find the LCM of the given numbers by common division method

(f) **18, 27**

Solution:

3	18, 27
3	6, 9
	2, 3

So, LCM of 18 and 27 is
3 × **3** × **3** × **2** = **54**.



COMMON MULTIPLES

Exercise 10(E)

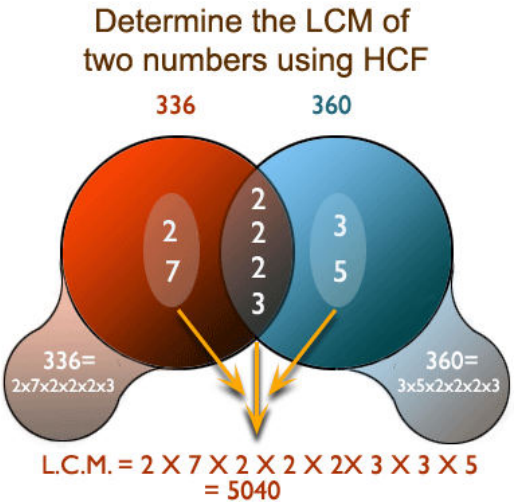
3. Find the LCM of the given numbers by common division method

(g) 36, 42

Solution:

2	36, 42
3	18, 21
3	6, 7
	2, 7

So, LCM of 36 and 42 is
2 × **3** × **3** × **2** × **7** = **252**.



COMMON MULTIPLES

Exercise 10(E)

3. Find the LCM of the given numbers by common division method

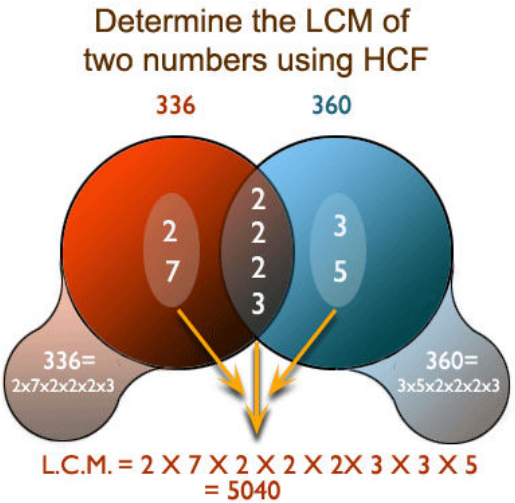
(h) **15, 64**

Solution:

2	15, 64
2	15, 32
2	15, 16
2	15, 8
2	15, 4
5	15, 2
	3, 2

So, LCM of 15 and 64 is

2 × **2** × **2** × **2** × **2** × **2** × **3** × **5** = **960**.



COMMON MULTIPLES

Exercise 10(E)

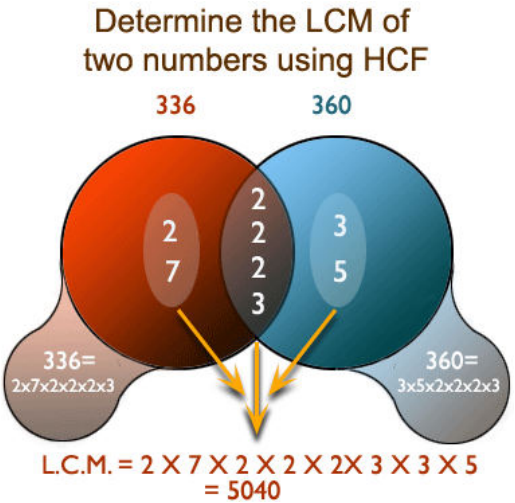
3. Find the LCM of the given numbers by common division method

(i) **28, 32**

Solution:

2	28, 32
2	14, 16
2	7, 8
2	7, 4
	7, 2

So, LCM of 28 and 32 is
2 × **2** × **2** × **2** × **2** × **7** = **224**.



COMMON MULTIPLES

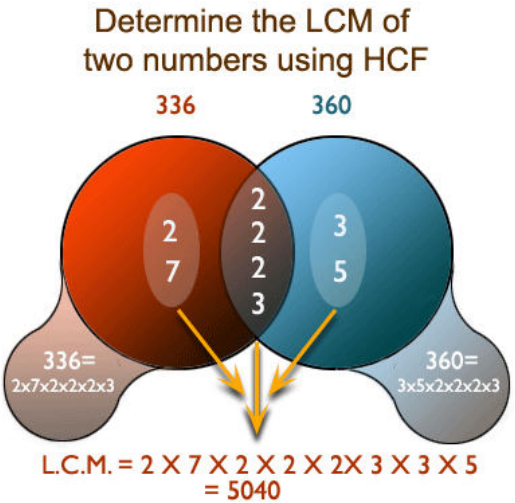
Exercise 10(E)

3. Find the LCM of the given numbers by common division method

(j) **27, 81**

Solution:

3	27, 81
3	9, 27
3	3, 9
	1, **3**



So, LCM of 27 and 81 is

3 × **3** × **3** × **3** = **81**.

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SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: DOUBT CLEARING AND CLASS TEST**

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CLASS TEST

FULL MARK - 15

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A. Fill in the blanks. **(5×1=5)**

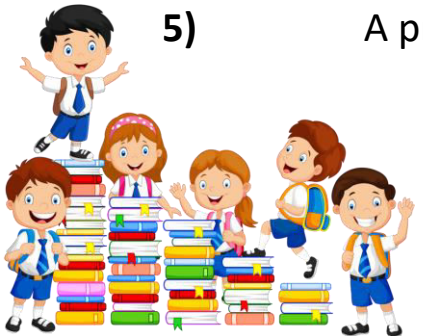
1) _____ is a factor of every number.

2) _____ is the first even prime number.

3) The smallest multiple of a number is the _____.

4) Every number is a multiple of _____.

5) A prime number is a number which has only _____ number of factors.



CLASS TEST

FULL MARK - 15

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B. Do as Directed. **(2×2=4)**

6) List all the prime numbers in between 25 to 40.

7) Make a factor tree for 36.

CLASS TEST

FULL MARK - 15

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C. Solve the following questions. **(2×3=6)**

8) Find the HCF of 45 and 125.

9) Find the LCM of 40,50 and 60.

CLASS TEST

FULL MARK - 15

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ANSWER

CLASS TEST

FULL MARK - 15

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A. Fill in the blanks. **(5×1=5)**

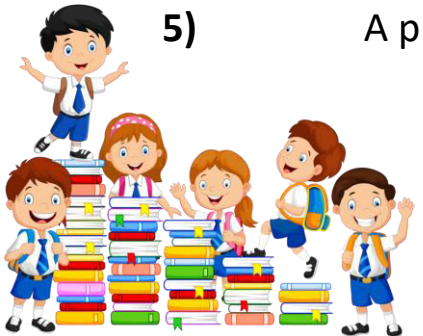
1) 1 is a factor of every number.

2) 2 is the first even prime number.

3) The smallest multiple of a number is the Number itself.

4) Every number is a multiple of 1.

5) A prime number is a number which has only 2 number of factors.



CLASS TEST **FULL MARK - 15**

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B. Do as Directed. **(2×2=4)**

6) List all the prime numbers in between 25 to 40.

29 31 37

CLASS TEST **FULL MARK - 15**

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B. Do as Directed. **(2×2=4)**

6) List all the prime numbers in between 25 to 40.

29 31 37

CLASS TEST **FULL MARK - 15**

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B. Do as Directed. **(2×2=4)**

6) List all the prime numbers in between 25 to 40.

29 31 37

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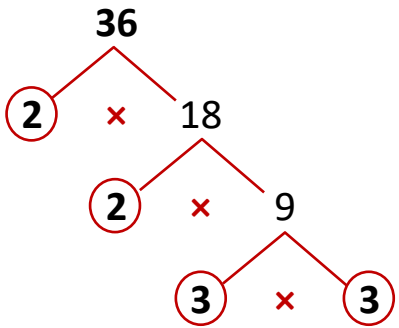
B. Do as Directed. **(2×2=4)**

7) Make the factor tree for 36.



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C. Solve the following questions. **(2×3=6)**

8) Find the HCF of 45 and 125.

3	45
3	15
	5

5	125
5	25
	5

45 = **3** × **3** × **5**

125 = **5** × **5** × **5**

HCF = **5**

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C. Solve The Following Questions. (3×2=6)

9) Find the LCM of 40,50 and 60.

2	40, 50, 60
2	20, 25, 30
5	10, 25, 15
	2, 5, 3

So, LCM of 40, 50 and 60 is
2 × **2** × **2** × **3** × **5** × **5** = **600**.

LEARNING OUTCOME:

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Students are able to recall the whole chapter by the help of this class test.

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THANKING YOU

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