SESSION	**: 3**
CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 10**
CHAPTER NAME	**: FACTORS AND MULTIPLES**
SUBTOPIC	**: LCM BY PRIME FACTORIZATION METHOD, EXERCISE-10 E Q.NO. 2**

LEARNING OBJECTIVE

- **Enable the students to understand how to find out the LCM by using prime factorization method.**

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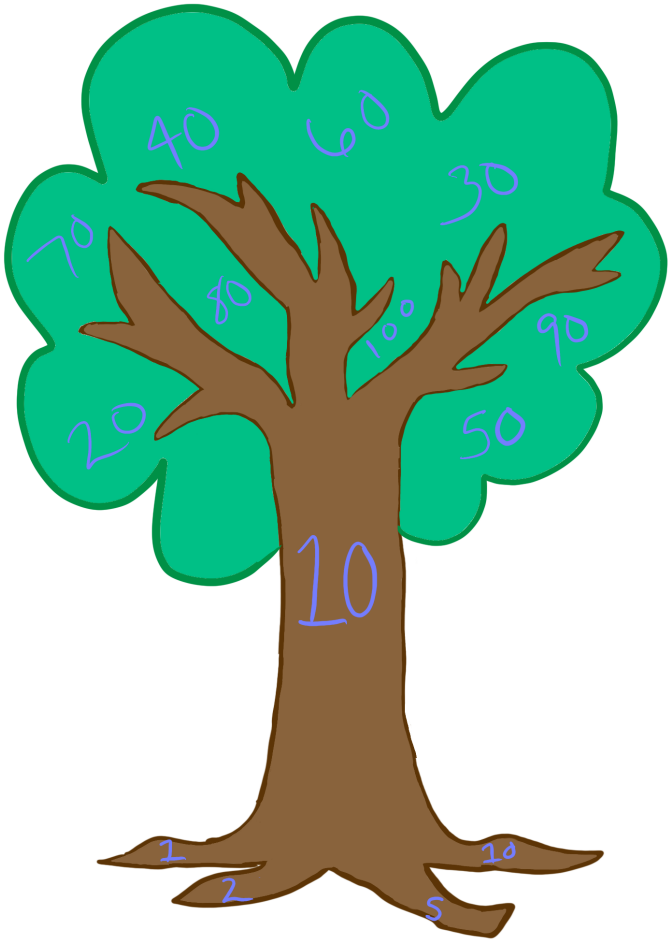
COMMON MULTIPLES

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.



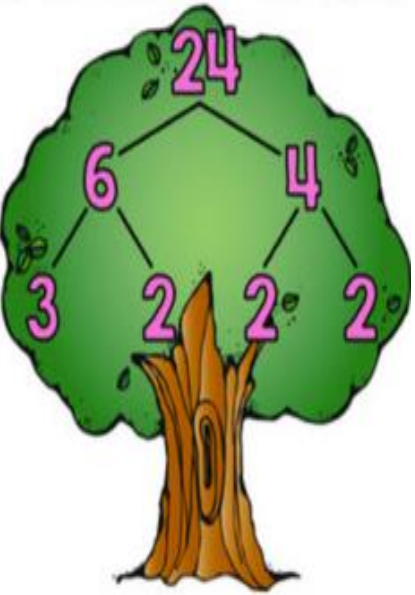
COMMON MULTIPLES

LCM by Prime factorization method :

Example : 1 Find the LCM of 9 and 15.

Solution :

3	9		**3**	15	
	3			**5**	



$9 = \mathbf{3} \times \mathbf{3}$

$15 = \mathbf{3} \times \mathbf{5}$

LCM $= \mathbf{3} \times \mathbf{3} \times \mathbf{5} = \mathbf{45}$

COMMON MULTIPLES

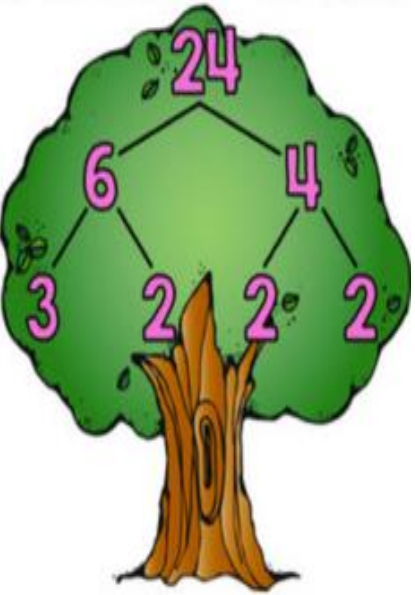
LCM by Prime factorization method :

Example : 2 Find the LCM of 16 and 28.

Solution :

2	16
2	8
2	4
	2

2	28
2	14
	7



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

$28 = 2 \times 2 \times 7$

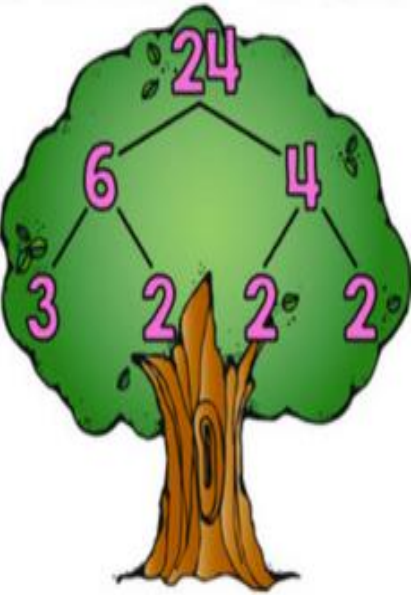
LCM = $2 \times 2 \times 2 \times 2 \times 7 = 112$

COMMON MULTIPLES

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

$32 = 2 \times 2 \times 2 \times 2 \times 2$

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

$72 = 2 \times 2 \times 2 \times 3 \times 3$

$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 2 \times 3 = 288$

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

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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**

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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** × **7**

36 = **3** × **2** × **2** × **3**

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

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LEARNING OUTCOME:

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

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THANKING YOU

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