MONTH : AUGUST

SESSION : 2

CLASS : V

SUBJECT : MATHEMATICS

CHAPTER NUMBER: 8

CHAPTER NAME : FACTORS AND MULTIPLES

SUB-TOPIC : HIGHEST COMMON FACTOR - PRIME FACTOR METHOD,

EXERCISE : 8 [B] Q.NO. 6

LEARNING OBJECTIVE :

Enable the students

- **To understand the concept of factors and prime factors.**
- **To understand how to find out common factors and highest common factor by prime factor method.**

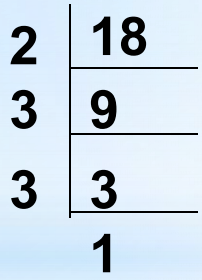
HIGHEST COMMON FACTOR

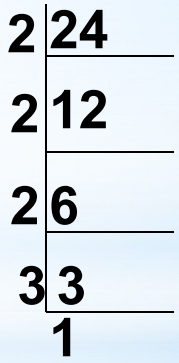
The GCF or HCF is the greatest whole number that is the common factor of given numbers.

Example : Find the H.C.F of 18 and 24

Solution :

Prime factor method (Method 1)





Prime factors of 18 = 2× 3 × 3

Prime factors of 24 = 2 × 2 × 2 × 3

Common factors of 18 and 24 are 2 and 3 .

So H.C.F of 18 and 24 is 2 × 3 = 6

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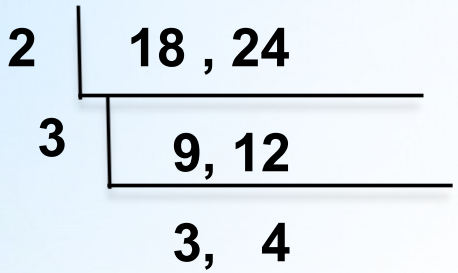
HIGHEST COMMON FACTOR

Example : Find the H.C.F of 18 and 24

Prime factor method (Method 2)



So H.C.F of 18 and 24 is $2 \times 3 = 6$

Prime factor method

Example 2 : Find the H.C.F of 48, 72 and 84

Solution: [METHOD 1]

2	48
2	24
3	12
2	4
2	2
	1

2	72
2	36
3	18
3	6
2	2
	1

2	84
2	42
3	21
7	7
	1

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

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

$84 = 2 \times 2 \times 3 \times 7$

Common factors of 48, 72 and 84 are 2, 2 and 3.

So, H.C.F. of 48, 72 and 84 is $2 \times 2 \times 3 = 12$

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PRIME FACTOR METHOD

Example 2 : Find the H.C.F of 48, 72 and 84

Solution: [METHOD 2]

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

The H.C.F. = 2 × 2 × 3 = 12

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EXERCISE : 8 [B]

6. Find the H.C.F of the following numbers by prime factor method.

a. 75 and 125

5	75 , 125
5	15 , 25
	3 , 5

H.C.F. = 5 × 5 = 25

b. 24, 54 and 60

2	24, 54 ,60
3	12, 27 ,30
	4 , 9, 10

H.C.F. = 2 × 3 = 6

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EXERCISE : 8 [B]

6. Find the H.C.F of the following numbers by prime factor method.

c. 63 , 70 , 98

$$7 \mid 63 , 70 , 98$$
$$9 , \quad 10, \quad 14$$

∴ The H.C.F is 7

d. 112 , 210 , 252

$$2 \mid 112, 210 , 252$$
$$7 \mid 56 , 105 , 126$$
$$8 , \quad 15 , \quad 36$$

∴ The H.C.F is $2 \times 7 = 14$

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EXERCISE : 8 [B]

6. Find the H.C.F of the following numbers by prime factor method.

e. 27 , 99 , 144

3	27 , 99 , 144
3	9 , 33 , 48
	3 , 11 , 16

H.C.F = 3 × 3 = 9

f. 175 , 250 , 300

5	175 , 250 , 300
5	35 , 50, 60
	7 , 10, 12

H.C.F.= 5 × 5 =25

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LEARNING OUTCOME:

The students are able

- **to understand the concept of factors and prime factors.**
- **to find out common factors and highest common factor by prime factor method.**

HOME ASSIGNMENT:

- Complete Exercise 8 [B] Q.No. 6 (g) to (i) in the notebook.

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THANKING YOU

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