

SESSION : 13
CLASS : IV
SUBJECT : MATHEMATICS
CHAPTER NUMBER : 10
CHAPTER NAME : FACTORS AND MULTIPLES
**SUBTOPIC : HCF BY PRIME FACTORIZATION
METHOD, EX-10 D Q.NO. 2**

CHANGING YOUR TOMORROW

LEARNING OBJECTIVE

- Enable the students to understand the process of prime factorization method to find HCF.

PRIME FACTORIZATION

Exercise 10(D)

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

(a) 8 and 12.

$$\begin{array}{r} 2 \mid 8 \\ \hline 2 \mid 4 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 2 \mid 12 \\ \hline 2 \mid 6 \\ \hline 3 \end{array}$$

$$\begin{aligned} 8 &= \textcircled{2} \times \textcircled{2} \times 2 \\ 12 &= \textcircled{2} \times \textcircled{2} \times 3 \end{aligned}$$

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



PRIME FACTORIZATION

Exercise 10(D)

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

(b) 124, 168 and 210.

$$\begin{array}{r} 2 \mid 124 \\ \hline 2 \mid 62 \\ \hline 31 \end{array}$$

$$\begin{array}{r} 2 \mid 168 \\ \hline 2 \mid 84 \\ \hline 2 \mid 42 \\ \hline 3 \mid 21 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 2 \mid 210 \\ \hline 3 \mid 105 \\ \hline 5 \mid 35 \\ \hline 7 \end{array}$$

$$124 = 2 \times 2 \times 31$$

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

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

$$\text{HCF} = 2$$



PRIME FACTORIZATION



Exercise 10(D)

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

(c) 96, 112 and 108.

$$\begin{array}{c|c} 2 & 96 \\ \hline 2 & 48 \\ \hline 2 & 24 \\ \hline 2 & 12 \\ \hline 2 & 6 \\ \hline & 3 \end{array}$$

$$\begin{array}{c|c} 2 & 112 \\ \hline 2 & 56 \\ \hline 2 & 28 \\ \hline 2 & 14 \\ \hline & 7 \end{array}$$

$$\begin{array}{c|c} 2 & 108 \\ \hline 2 & 54 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline & 3 \end{array}$$

$$\begin{aligned} 96 &= (2 \times 2) \times 2 \times 2 \times 2 \times 3 \\ 112 &= (2 \times 2) \times 2 \times 2 \times 7 \\ 108 &= (2 \times 2) \times 3 \times 3 \times 3 \end{aligned}$$

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



PRIME FACTORIZATION

Exercise 10(D)

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

(d) 7 and 98.

7

$$\begin{array}{r} 7 \mid 98 \\ 7 \mid 14 \\ \hline 2 \end{array}$$

$$7 = \textcircled{7}$$

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

$$\text{HCF} = 7$$



PRIME FACTORIZATION

Exercise 10(D)

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

(e) 108 and 144.

$$\begin{array}{r} 2 \mid 108 \\ 2 \mid 54 \\ 3 \mid 27 \\ 3 \mid 9 \\ \hline & 3 \end{array}$$

$$\begin{array}{r} 2 \mid 144 \\ 2 \mid 72 \\ 3 \mid 36 \\ 3 \mid 12 \\ \hline & 2 \end{array}$$

$$\begin{aligned} 108 &= (2 \times 2) \times (3 \times 3) \times 3 \\ 144 &= (2 \times 2) \times (3 \times 3) \times 2 \times 2 \end{aligned}$$

$$\text{HCF} = 2 \times 2 \times 3 \times 3 = 36$$



PRIME FACTORIZATION

Exercise 10(D)

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

(f) 40, 50 and 64.

$$\begin{array}{r} 2 \mid 40 \\ \hline 2 \mid 20 \\ \hline 2 \mid 10 \\ \hline & 5 \end{array}$$

$$\begin{array}{r} 2 \mid 50 \\ \hline 5 \mid 25 \\ \hline & 5 \end{array}$$

$$\begin{array}{r} 2 \mid 64 \\ \hline 2 \mid 32 \\ \hline 2 \mid 16 \\ \hline 2 \mid 8 \\ \hline & 4 \\ \hline & 2 \end{array}$$

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

$$50 = 2 \times 5 \times 5$$

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

$$\text{HCF} = 2$$



PRIME FACTORIZATION

Exercise 10(D)

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

(g) 14, 56 and 98.

$$\begin{array}{r} 2 \mid 14 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 2 \mid 56 \\ \hline 7 \mid 28 \\ \hline 2 \mid 4 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 2 \mid 98 \\ \hline 7 \mid 49 \\ \hline 7 \end{array}$$

$$14 = \cancel{2} \times \cancel{7}$$

$$56 = \cancel{2} \times \cancel{7} \times 2 \times 2$$

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

$$\text{HCF} = 2 \times 7 = 14$$



PRIME FACTORIZATION

Exercise 10(D)

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

(h) 16 and 48.

$$\begin{array}{r} 2 \Big| 16 \\ 2 \Big| 8 \\ 2 \Big| 4 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 2 \Big| 48 \\ 2 \Big| 24 \\ 2 \Big| 12 \\ \hline 2 \end{array} \quad \begin{array}{r} 3 \end{array}$$

$$16 = (2 \times 2 \times 2 \times 2) \\ 48 = (2 \times 2 \times 2 \times 2) \times 3$$

$$\text{HCF} = 2 \times 2 \times 2 \times 2 = 16$$



PRIME FACTORIZATION

Exercise 10(D)

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

(i) 15 and 20.

$$\begin{array}{r} 5 \quad | \quad 15 \\ \quad \quad \quad \hline 3 \end{array}$$

$$\begin{array}{r} 5 \quad | \quad 20 \\ \quad \quad \quad \hline 2 \quad | \quad 4 \\ \quad \quad \quad \hline \quad \quad \quad 2 \end{array}$$



$$15 = 5 \times 3$$

$$20 = 5 \times 2 \times 2$$

$$\text{HCF} = 5$$



PRIME FACTORIZATION

Exercise 10(D)

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

(j) 112, 210 and 260.

$$\begin{array}{r} 2 \mid 112 \\ 2 \mid 56 \\ 2 \mid 28 \\ 2 \mid 14 \\ \hline & 7 \end{array}$$

$$\begin{array}{r} 2 \mid 210 \\ 3 \mid 105 \\ 5 \mid 35 \\ \hline & 7 \end{array}$$

$$\begin{array}{r} 2 \mid 260 \\ 2 \mid 130 \\ 5 \mid 65 \\ \hline & 13 \end{array}$$

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

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

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

$$\text{HCF} = 2$$



HOME ASSIGNMENT:

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

LEARNING OUTCOME:

Students are able to understand the process of prime factorization to find HCF.

**THANKING YOU
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