

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.

$$\begin{array}{r|l} 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & \end{array}$$

$$\begin{array}{r|l} 2 & 12 \\ \hline 2 & 6 \\ \hline 3 & \end{array}$$

$$8 = 2 \times 2 \times 2$$

$$12 = 2 \times 2 \times 3$$

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



PRIME FACTORIZATION

Exercise 10(D)

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

(b) 124, 168 and 210.

$$\begin{array}{r|l} 2 & 124 \\ \hline 2 & 62 \\ \hline & 31 \end{array}$$

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

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

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

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

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

$$\text{HCF} = 2$$



PRIME FACTORIZATION

Exercise 10(D)

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

(c) 96, 112 and 108.

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

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

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

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

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

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

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



PRIME FACTORIZATION

Exercise 10(D)

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

(d) 7 and 98.

7

$$\begin{array}{r|l} 7 & 98 \\ \hline 7 & 14 \\ & 2 \end{array}$$

$$7 = 7$$

$$98 = 7 \times 7 \times 2$$

$$\text{HCF} = 7$$



PRIME FACTORIZATION

Exercise 10(D)

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

(e) 108 and 144.

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

$$\begin{array}{r|l} 2 & 144 \\ \hline 2 & 72 \\ \hline 3 & 36 \\ \hline 3 & 12 \\ \hline 2 & 4 \\ \hline & 2 \end{array}$$

$$108 = 2 \times 2 \times 3 \times 3 \times 3$$
$$144 = 2 \times 2 \times 3 \times 3 \times 2 \times 2$$

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



PRIME FACTORIZATION

Exercise 10(D)

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

(f) 40, 50 and 64.

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

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

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

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

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

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

$$\text{HCF} = 2$$



PRIME FACTORIZATION

Exercise 10(D)

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

(g) 14, 56 and 98.

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

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

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

$$\begin{aligned} 14 &= 2 \times 7 \\ 56 &= 2 \times 7 \times 2 \times 2 \\ 98 &= 2 \times 7 \times 7 \end{aligned}$$

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



PRIME FACTORIZATION

Exercise 10(D)

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

(h) 16 and 48.

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

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

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

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



PRIME FACTORIZATION

Exercise 10(D)

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

(i) 15 and 20.

$$\begin{array}{r} 5 \overline{) 15} \\ \underline{3} \end{array}$$

$$\begin{array}{r} 5 \overline{) 20} \\ \underline{4} \\ 2 \end{array}$$

$$\begin{aligned} 15 &= 5 \times 3 \\ 20 &= 5 \times 2 \times 2 \end{aligned}$$

$$\text{HCF} = 5$$



PRIME FACTORIZATION

Exercise 10(D)

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

(j) 112, 210 and 260.

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

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

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

$$\begin{aligned} 112 &= 2 \times 2 \times 2 \times 2 \times 7 \\ 210 &= 2 \times 3 \times 5 \times 7 \\ 260 &= 2 \times 2 \times 5 \times 13 \end{aligned}$$

$$\text{HCF} = 2$$



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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