

**CLASS: 5**

**SUBJECT: MATHEMATICS (Assignment 11)**

**Do the problems given below in the Math copy. (Answers are provided at the end)**

**TO FIND THE HCF USING PRIME FACTORIZATION**

**Example 1:** Find the HCF of 12 and 56.

Step 1: Find the prime factorization of each of the given numbers.

Prime factorization of 12 =  $2 \times 2 \times 3$

Prime factorization of 56 =  $2 \times 2 \times 2 \times 7$

Step 2: Separate the common factors

Prime factorization of 12 =  $2 \times 2 \times 3$

Prime factorization of 56 =  $2 \times 2 \times 2 \times 7$

Common factors of 12 and 56 = 2 and 2

Step 3: Multiply the common factors to find the HCF

HCF of 12 and 56 =  $2 \times 2 = 4$

**Example 2:** Find the HCF of 18 and 24.

Step 1: Find the prime factorization of each of the given numbers.

Prime factorization of 18 =  $2 \times 3 \times 3$

Prime factorization of 24 =  $2 \times 2 \times 2 \times 3$

Step 2: Separate the common factors

Prime factorization of 18 =  $2 \times 3 \times 3$

Prime factorization of 24 =  $2 \times 2 \times 2 \times 3$

Common factors of 18 and 24 = 2 and 3

Step 3: Multiply the common factors to find the HCF

HCF of 18 and 24 =  $2 \times 3 = 6$

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**TO FIND THE HCF OF TWO NUMBERS USING DIVISION METHOD**

***Divisor - The number which divides***

***Dividend - The number which gets divided***

***Remainder - Number left over in a division problem***

***Quotient - The result after division***

**Example 1:** Find the HCF of 18 and 30.

Step 1: Divide the larger number by the smaller number. i.e. 30 by 18

Divisor = 18 Dividend = 30 Quotient = 1 Remainder = 12

Step 2: The remainder in Step 1 becomes the next divisor and the divisor in Step 1 becomes the next dividend

Divisor = 12 Dividend = 18 Quotient = 1 Remainder = 6

Step 3: The remainder in Step 2 becomes the next divisor and the divisor in Step 2 becomes the next dividend

Divisor = 6 Dividend = 12 Quotient = 2 Remainder = 0

Step 4: The last divisor which gives the remainder 0 is the HCF of the given numbers. i.e. 6

$$\begin{array}{r} 1 \\ 18 \overline{) 30} \\ \underline{-18} \phantom{0} \\ 12 \end{array} \quad \begin{array}{r} 1 \\ 12 \overline{) 18} \\ \underline{-12} \phantom{0} \\ 6 \end{array} \quad \begin{array}{r} 2 \\ 6 \overline{) 12} \\ \underline{-12} \\ 00 \end{array}$$

**Example 2:** Find the HCF of 75 and 180.

Step 1: Divide the larger number by the smaller number. i.e. 180 by 75

Divisor = 75 Dividend = 180 Quotient = 2 Remainder = 30

Step 2: The remainder in Step 1 becomes the next divisor and the divisor in Step 1 becomes the next dividend

Divisor = 30 Dividend = 75 Quotient = 2 Remainder = 15

Step 3: The remainder in Step 2 becomes the next divisor and the divisor in Step 2 becomes the next dividend

Divisor = 15 Dividend = 30 Quotient = 2 Remainder = 0

Step 4: The last divisor which gives the remainder 0 is the HCF of the given numbers. i.e. 15

$$\begin{array}{r} 2 \\ 75 \overline{) 180} \\ \underline{-150} \phantom{0} \\ 30 \end{array} \quad \begin{array}{r} 2 \\ 30 \overline{) 75} \\ \underline{-60} \phantom{0} \\ 15 \end{array} \quad \begin{array}{r} 2 \\ 15 \overline{) 30} \\ \underline{-30} \\ 00 \end{array}$$

## Questions

1. Find the HCF of the following numbers using prime factorization.
  - i) 8 and 14
  - ii) 9 and 27
  - iii) 64 and 80
  - iv) 84 and 105
  - v) 150 and 350
  
2. Find the HCF of the following numbers using division method.
  - i) 7 and 96
  - ii) 12 and 50
  - iii) 10 and 100
  - iv) 84 and 144
  - v) 120 and 168

| Answer key |        |
|------------|--------|
| 1.         |        |
| i. 2       | ii. 9  |
| iii. 8     | iv. 21 |
| v. 50      |        |
| 2.         |        |
| i. 1       | ii. 2  |
| iii. 10    | iv. 12 |
| v. 24      |        |