

All In One Worksheet: Learn How to Find the Lowest Common Multiple & Highest Common Factor Part By Prime

Are you struggling with finding the lowest common multiple (LCM) and highest common factor (HCF) of numbers? Look no further! In this comprehensive worksheet, we will break down the concept of LCM and HCF, and guide you step-by-step on how to find them using prime factorization.

to LCM and HCF

Before diving into the calculation methods, let's understand what LCM and HCF mean.

Lowest Common Multiple (LCM)

The LCM of two or more numbers is the smallest multiple that is evenly divisible by all the given numbers. It is commonly used when solving problems involving fractions or finding the least common denominator.



All in One Worksheet - Lowest Common Multiple & Highest Common Factor - Part I - By Prime

Factorisation by C. C. Chancey (Kindle Edition)

★★★★☆ 4.1 out of 5

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Highest Common Factor (HCF)

The HCF of two or more numbers is the largest number that divides all the given numbers evenly. HCF is essential in simplifying fractions to their lowest terms or solving problems related to ratios and proportions.

Finding the LCM and HCF Part By Prime

In this section, we will learn how to calculate the LCM and HCF of given numbers using prime factorization, one step at a time.

Step 1: Prime Factorization

The first step to finding the LCM and HCF is to express each number as a product of prime factors. Prime factors are the prime numbers that divide exactly into a given number without leaving a remainder.

Let's take an example to understand this better:

Suppose we have two numbers: 24 and 36.

To find the prime factorization of 24, we can divide it by the smallest prime number, 2, until we obtain a quotient of 1:

$$24 \div 2 = 12$$

$$12 \div 2 = 6$$

$$6 \div 2 = 3$$

So, the prime factorization of 24 is $2 \times 2 \times 2 \times 3 = 2^3 \times 3$.

Similarly, let's find the prime factorization of 36:

$$36 \div 2 = 18$$

$$18 \div 2 = 9$$

$$9 \div 3 = 3$$

So, the prime factorization of 36 is $2 \times 2 \times 3 \times 3 = 2^2 \times 3^2$.

Step 2: Finding LCM

Now that we have the prime factorization of both numbers, finding the LCM becomes easier. The LCM is calculated by multiplying the highest powers of all the common prime factors.

In our example, the common prime factors are 2 and 3. The highest power of 2 is 2^3 , and the highest power of 3 is 3^2 .

Thus, the LCM of 24 and 36 is:

$$\text{LCM} = 2^3 \times 3^2 = 8 \times 9 = 72$$

So, the LCM of 24 and 36 is 72.

Step 3: Finding HCF

To find the HCF, we multiply the lowest powers of all the common prime factors.

In our example, the common prime factors are 2 and 3. The lowest power of 2 is 2^2 , and the lowest power of 3 is 3^1 .

Thus, the HCF of 24 and 36 is:

$$\text{HCF} = 2^2 \times 3^1 = 4 \times 3 = 12$$

So, the HCF of 24 and 36 is 12.

Practicing LCM and HCF Using Worksheets

Now that you understand the concept and calculation methods of LCM and HCF, it's time to put your knowledge to the test!

Our all-in-one worksheet includes multiple exercises to help you practice finding the LCM and HCF using prime factorization. The exercises range from simple to complex, ensuring that you gain confidence as you progress.

Not only will these exercises sharpen your mathematical skills, but they will also enable you to tackle real-life problems involving LCM and HCF with ease.

Mastering the concept of LCM and HCF can significantly simplify various mathematical operations. By understanding the steps required to find these values using prime factorization, you can solve problems efficiently and accurately.

Don't forget to practice! Utilize the all-in-one worksheet provided to improve your skills and reinforce your understanding of LCM and HCF.

Remember, using prime factorization is just one of the many methods to find the LCM and HCF. Explore alternative approaches and discover which one works best for you.

Happy calculating!

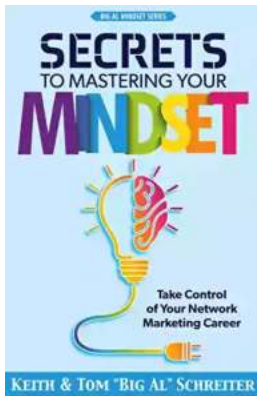


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All in One' worksheets provide a standalone exercise, solutions and a worked example, all on a single printable page. It also links to specific Key Skill(s) on the DrFrostMaths for additional online practice of questions.



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