

Name: Key

5th Grade Notes 2.1 Prime Factorization p. 81

3 ← factor
x 4 ← factor
12 ← product

-a prime number is a number that can only be divided **evenly** by one and itself (it only has 2 factors)

Ex: 19: 1 x 19

Ex: 13: 1 x 13

- 2 is the only even prime number: 1 x 2

- odd numbers don't have to be prime Ex: 25: 1 x 25; 5 x 5

-a composite number is a number that has more than two factors

Ex: 40: 1 x 40; 2 x 20; etc.

-prime factorization is also called making a factor tree

1.) find any factor pair of the number (except 1)

and write it on the next line

2.) break down all composite numbers, one at a time, until

there are only prime numbers at the end (don't forget to bring down the prime numbers to each new line and have a mult.

sign between each number

3.) put the numbers in order from least to greatest

using exponents

Ex:

$$\begin{array}{c} 36 \\ / \quad \backslash \\ 2 \cdot 18 \\ | \quad / \quad \backslash \\ 2 \cdot 2 \cdot 9 \\ | \quad | \quad / \quad \backslash \\ 2 \cdot 2 \cdot 3 \cdot 3 \\ \text{answer: } 2^2 \cdot 3^2 \end{array}$$

OR

$$\begin{array}{c} 36 \\ / \quad \backslash \\ 4 \cdot 9 \\ / \quad \backslash \quad / \quad \backslash \\ 2 \cdot 2 \cdot 3 \cdot 3 \end{array} \quad \text{don't forget}$$

answer: $2^2 \cdot 3^2$

Ex:

$$\begin{array}{c} 16 \\ / \quad \backslash \\ 4 \cdot 4 \\ / \quad \backslash \quad / \quad \backslash \\ 2 \cdot 2 \cdot 2 \cdot 2 \\ \text{answer: } 2^4 \end{array}$$