To Find the Square Root of Any Perfect Square Number by the Prime Factorization Method

A. Choose the correct answer:

1. In the prime factorization method, the factors are grouped into.

a) Pairs b) Triplets

c) Quadruples d) Singles

2. The square root of 144 using prime factorization is.

a) 12 b) 14

c) 16 d) 18

3. Prime factors of 81 are.

a) $3 \times 3 \times 3 \times 3$ b) $3 \times 3 \times 9$

c) 9×9 d) $3 \times 9 \times 3$

4. Which of the following statements is correct about prime factorization method.

a) Only used for non-perfect squares

b) Used for perfect squares

c) Used for prime numbers only

d) Cannot be used for any square

5. If the prime factorization of a number contains unpaired prime factors, the number is.

a) A perfect square b) Not a perfect square

c) Always prime d) Always even

B. Write the Missing Terms to Complete the Sentences:

1. In prime factorization method, prime factors are grouped into equal _____.
2. The square root of a perfect square has each prime factor appearing an _____ number of times.
3. Prime factorization is breaking down a number into _____ numbers.
4. If a number has all prime factors paired, then it is a _____ square.
5. The square root of 400 is _____ using prime factorization.

C. Figure out the answers to these questions:

1. Find the square root of 225 using prime factorization.
2. Find the square root of 484 using the prime factorization method.

3. If the prime factorization of a number is $2^2 \times 3^2 \times 5^2$, find its square root

4. Why is prime factorization important in finding the exact square root

5. Find the square root of 729 by prime factorization and explain each step

D. Mark each sentence with a True (✓) or False (✗):

1. In prime factorization method, unpaired prime factors are left out while finding square root _____

2. Square root of 625 can be found using prime factorization _____

3. Prime factorization involves only composite numbers _____

4. In prime factorization, a perfect square has all primes raised to even powers _____

5. 169 cannot be resolved into prime factors _____

E. Challenge yourself with these questions:

1. Find the square root of 256 using the prime factorization method.

2. Write the steps to find the square root of 900 by prime factorization.

3. If the prime factors of a number are $2^2 \times 7^2$, find its square root.

4. Find the square root of 784 using prime factorization method.

5. Explain with an example how prime factorization shows if a number is not a perfect square.