NAME_____

Module 4   Fractions, Decimals, Percents, and Factors
Lesson 3   Factors and Prime Factorization

Lesson Objectives

- Find the factors of a number.
- Determine if a number is prime or composite.
- Find the prime factorization of a composite number.
- Use factors of a number to find common factors of two integers, including finding the Greatest Common Factor (GCF) of two or more integers.
- Use prime factorization to determine the Greatest Common Factor (GCF).

Subtopic 1   Finding the Factors of a Number

- _____ divide into a number with no remainder.
- Factors _____ to get a product.
- A number greater than one with only the factors one and itself is a _____ _____.
- A number that has more than two factors is a _____ _____.
- _____ and _____ are neither prime nor composite.

1 Is 6 a factor of 21? Explain the answer.

2 List the factors of 100.
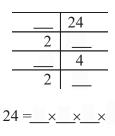
_____ is the only even number that is prime.

3 Determine whether each number is prime or composite.

9

56

29

Finding the Prime Factorization of a Number

- To _____ a number is to write it as the product of two or more factors.
- The _____ _____ of a number shows the number written as the product of prime factors.
- Prime Factorization Using a Factor Tree

$$
\begin{array}{c}
30 \\
/ \ \\
5 \ \times \underline{\ } \\
/ \ \ / \ \\
5 \ \times \underline{\ } \times \underline{\ }
\end{array}
$$

$$30 = \underline{\ } \times \underline{\ } \times \underline{\ }$$

- Prime Factorization Using a Factor Ladder

__	24
2	__
__	4
2	__

$$24 = \underline{\ } \times \underline{\ } \times \underline{\ } \times$$

- This prime factorization, $75 = 3 \times 5 \times 5$, is written in _____ form.
- This prime factorization, $75 = 3 \times 5^2$, is written in _____ form.

4 Find the prime factorization of 48.

5 Find the prime factorization of 98.

6 Find the prime factorization of 150.

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Subtopic 3   **Common Factors and Greatest Common Factor**

- A _____ is a number that is a factor of two or more numbers.
- The _____ is the largest common factor of two or more numbers.

7 Find the common factors of 24 and 60.

8 Find the GCF of 24 and 60.

Subtopic 4   **Using the Prime Factorization to Find the GCF**

To find the GCF using prime factorization:
- Write the _____ _____ of each number.
- The GCF is the _____ of the _____ prime factors.

9 Use prime factorization to find the GCF of 50 and 25.

10 Use prime factorization to find the GCF of 98, 70, and 42.