



## Glossary

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### Unit 4 Exponents and Radicals

**Benchmark** a standard against which something can be compared or measured

**Coefficient** a number that a radical or variable is multiplied by; it is usually written in front

**Composite Numbers** numbers with more than two factors (In other words, more factors than just 1 and itself. A composite number can be written as the product of two factors, where neither of which is itself.)

**Cube Root** a factor that is multiplied by itself three times to generate a perfect cube

**Entire Radical** a radical expression with all values sitting under the root sign

**Exponent** a superscripted number on the base of a power that represents how many times the base number is multiplied by itself

**Exponent Laws** the rules governing the combination of exponents

**Factors** two or more numbers that are multiplied resulting in a product

**Greatest Common Factor** the largest factor that is common to two or more numbers

**Index** indicates the type of root to be taken

**Integers** the Natural Numbers, their negatives, and zero;  $Z = \{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$

**Irrational Numbers** numbers that cannot be expressed as fractions (Expressed as decimals, they neither terminate, nor repeat.  $\overline{Q} = \{\text{non-terminating, non-repeating decimals}\}$ )

**Least Common Multiple** the smallest identical multiple shared between two or more numbers

**Mixed Radical** a radical expression, usually in simplest form, that has a numerical coefficient in front of the root sign and a value under the root sign

**Multiples** the result of an original number multiplied by an Integer

**Natural Numbers** are the counting numbers;  $N = \{1, 2, 3, \dots\}$

**Negative Exponent** the index value of a power is a negative number

**Perfect Cube** generated when three identical factors are multiplied together

**Perfect Square** generated when a factor is multiplied by itself

**Powers** indicate how many times a number is to be multiplied by itself (The base represents the number, and the index (or the exponent) is the number of times the base is multiplied by itself.)

**Prime Factorization** expressing a number as the product of its prime factors

**Prime Number** a number with exactly two factors, 1 and itself

**Principal Square Root** the positive value of the square root of a number

**Radical** In algebra,  $\sqrt[n]{a}$  indicates the  $n^{\text{th}}$  root of a quantity  $a$  is being taken, where  $a$  is the radicand.

**Radicand** the number under the root sign

**Rational Exponents** an exponent that is in the form of a fraction,  $\frac{m}{n}$ , where  $n \neq 0$

**Rational Numbers** numbers that can be expressed as fractions of the form  $\frac{a}{b}$ , where  $a$  and  $b$  are integers, and  $b$  must not equal zero (Expressed as decimals, they either terminate or repeat.  
 $Q = \left\{ \frac{a}{b}, a, b \in \mathbb{Z}; b \neq 0 \right\}$ )

**Real Numbers** the set of the Rational and Irrational Numbers

**Simplified Form** an expression written in exact, reduced form

**Square Root** a factor that is multiplied by itself to generate a perfect square

**Variables** used to represent numerical values and are usually represented by letters in the alphabet, such as  $x$ ,  $y$ ,  $z$ ,  $a$ , or  $b$

**Whole Numbers** the Natural Numbers and zero;  $W = \{0, 1, 2, 3, \dots\}$