

## Nested Radical Expressions

## Background

After completing the Radical Expressions focused lessons 1 to 5, you are ready to learn how to read and write nested radical expressions. A **nested radical expression** is a radical expression that contains another radical expression. When radical expressions are nested, one inside another, and we wish to write them in Nemeth Code, we need to use **order-of-radical indicators**. The first inner radical uses dots 4-6. The second inner radical uses dots 4-6 twice and so on. Each of these indicators shows the depth of each inner radical.

## Basic Rules for Writing Nested Radical Expressions

If an inner radical has no index, the appropriate order-of-radical indicator is placed immediately before the radical sign. If an inner radical does have an index, the appropriate order-of-radical indicator must be placed immediately before the index-of-radical indicator. This same order-of-radical indicator must be placed before its corresponding termination indicator. If more than one radical is completed at the same termination point, the radicals are terminated beginning with the innermost radical first.

## Examples

1.  $\sqrt{2 + \sqrt{3}}$

would be read: the square root of two plus the square root of three end root end root.

2.  $\sqrt{2 + \sqrt{3 + \sqrt{4}}}$

would be read: the square root of two plus the square root of three plus the square root of four end root end root end root.

3.  $\sqrt[3]{x + \sqrt[3]{x + y + z}}$

would be read: the cube root of x plus the cube root of x plus y end root plus z end root.

[illegible]

