Radical Notation

We have an alternate notation for radicals (roots) that is easier to use in some circumstances. We have already used the radical symbol for roots.

\[ \sqrt{9} = 3. \]

The same statement can be written using rational exponents as

\[ 9^{1/2} = 3. \]

Note because it is a square (or 2nd) root we use 1/2. For a cube (or 3rd) root we use 1/3. What would we use for a fourth (4th) root? This notation makes sense because square and square root are opposites. Thus \( \sqrt{3^2} = (3^2)^{1/2} = 3. \)