

ROOTS AND RADICAL EXPRESSIONS Guided Notes

1. The root of a number k is a number, which when multiplied by itself a given number of times, equals k .

2. If the radicand is positive (or negative) and index is even, the roots will be positive and negative.

If the radicand is positive and index is odd, the roots will be positive.

If the radicand is negative and index is odd, the roots will be negative.

The real roots of $\sqrt[2]{81}$ are +9.

The real roots of $\sqrt[3]{-125}$ are -5.

3. By n^{th} root property, $\sqrt[n]{a^n} = \underline{a}$.

By quotient property of radicals, $\sqrt[n]{\frac{a}{b}} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}}$.

By product property of radicals, $\sqrt[n]{ab} = \sqrt[n]{a} \times \sqrt[n]{b}$.

4. $\sqrt[2]{25x^2} = \underline{5x}$

$\sqrt[3]{y^3} = \underline{y}$

$\sqrt[2]{\frac{x^4}{y^4}} = \frac{\sqrt{x^4}}{\sqrt{y^4}} = \frac{x^2}{y^2}$