

Ex. 3. To find the Cube Root of .012812904.

$$\sqrt[3]{.012812904} = \sqrt[3]{\frac{12812904}{1000000000}} = \frac{234}{1000} = .234.$$

12. To extract the cube root of an integer or decimal expression to a particular place of decimals, in the given expression, we must take *three times the number* of decimal places required.

Thus, to find the cube root of 4.23 accurately to three places of decimals, we extract the cube root of 4.230000000, making the given expression a decimal of the *ninth* order. In working this example, we find the cube root of 4.230000000, *regarded as a whole number*, and mark off three decimal places in the result.

13. The Cube Root of a *Vulgar Fraction* may be found by taking the roots of the numerator and denominator, or by reducing the fraction to a decimal of the 3rd, 6th, 9th . . . order, and proceeding as in Art. 12.

### Examples III

Find the Cube Root of

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|----------------|--------------------------|------------------------|
| 1. .389017.    | 3. 27054.036008.         | 5. $\frac{259}{888}$ . |
| 2. .048228544. | 4. $\frac{1331}{1728}$ . | 6. $5\frac{13}{43}$    |
|                | 7. $405\frac{28}{125}$ . |                        |

Find to three places of decimals the Cube Roots of

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|-----------------|---------------------|----------------------|
| 8. 5.           | 11. 15.926972504.   | 14. $\frac{1}{3}$ .  |
| 9. 576.         | 12. $\frac{5}{9}$ . | 15. $7\frac{3}{5}$ . |
| 10. .121861281. | 13. $\frac{3}{4}$ . | 16. $3\frac{1}{5}$ . |

14. The *fourth* root of a number is found by taking the square root of the square root of the number.

$$\text{Thus } \sqrt[4]{4096} = \sqrt{64} = 8.$$

The *sixth* root of a number is found by taking the cube root of the square root of the number,

$$\text{Thus } \sqrt[6]{64} = \sqrt[3]{8} = 2.$$