Bellwork

1. What does it mean to take the square root of something?

2. What does it mean to take the cube root of something?

3. What's the cube root of something cubed? (Ex: Find the cube root of x^3.)

Radical Form to Rational Exponent Form

Given a Radical Expression:

This is an expression that is a square root, cube root, or higher root.

Solution becomes a Rational Exponent:

This is an expression that will be contained in parentheses with an exponent that is a fraction.

General Properties

$$\sqrt[n]{a^m} = a^{\frac{m}{n}}$$

$$\sqrt[n]{(a^c b^d)^m} = (a^c b^d)^{\frac{m}{n}}$$

NOTE: **If there is no number for the n, Then the number is a 2.**

Examples

1. $\sqrt[4]{(ab^2)}$

2. $\sqrt{x^4y^2}$

More Examples

3. $\sqrt[7]{b^{14}}$

4. $\sqrt[5]{(-6y^5)^3}$

More Examples

5. $\sqrt[9]{(-1yz^3)^4}$

6. $\sqrt[8]{\left(\frac{10m^2n^3}{p^6}\right)^4}$

More Examples

7. $\dfrac{1}{\sqrt[6]{(2a^3)}}$

8. $\dfrac{2}{\sqrt{(3x)^5}}$