

## RADICALS AND RATIONAL EXPONENTS: GUIDED NOTES

### Rewriting

$$\sqrt[n]{x} = x^{\frac{1}{n}} \quad n^{\text{th}} \text{ root, where } n \text{ is the index}$$

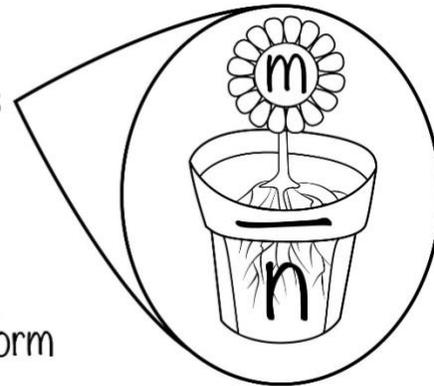
$$\sqrt{x} = x^{\frac{1}{2}} \quad \text{square root}$$

$$\sqrt[3]{8} = 2 \quad \text{because } 2^3 = 8$$

$$\sqrt[n]{a^m} = \left(\sqrt[n]{a}\right)^m = a^{\frac{m}{n}}$$

radical form

rational exponent form



Rewrite each expression in rational exponent form.

1)  $\sqrt[3]{10} =$

2)  $(\sqrt[2]{2a})^4 =$

Rewrite each expression in radical form.

3)  $k^{\frac{5}{2}} =$

4)  $2x^{\frac{4}{3}} =$

## Simplifying

Simplify each of the following expressions. Write your final answer using the given notation.

- *The power inside the radical must be less than the index.*
- *Final answers must have positive exponents.*

5)  $(-64x^2y \cdot xy^{-7})^{\frac{1}{3}} =$

6)  $\sqrt[4]{32x^8y^9z^7} =$