

Name:

Date:

Topic:

Class:

Main Ideas/Questions

Notes/Examples

### SQUARE ROOTS

*with Variables*

GIVEN:

$$\sqrt{a^m}$$

- IF  $m$  IS A MULTIPLE OF 2, use the rule  $\sqrt{a^m} = \underline{\hspace{2cm}}$
- If  $m$  is NOT a multiple of 2, break it apart:  $\sqrt{a^m} = \sqrt{a^{m-1} \cdot a}$

### EXAMPLES

1.  $\sqrt{x^2}$

2.  $\sqrt{9k^{10}}$

3.  $\sqrt{n^5}$

4.  $\sqrt{40a^{19}}$

5.  $\sqrt{25x^6y^{13}}$

6.  $\sqrt{p^{15}q^9r}$

7.  $\sqrt{63b^2}$

8.  $\sqrt{27n^3}$

9.  $8\sqrt{320xy^4}$

10.  $-2\sqrt{180u^2v}$

11.  $\sqrt{128p^5q^2r^{18}}$

12.  $-5\sqrt{144x^{16}y^{10}z^7}$

# CUBE ROOTS

with Variables

GIVEN:

$$\sqrt[3]{a^m}$$

- If  $m$  IS A MULTIPLE OF 3, use the rule:  $\sqrt[3]{a^m} = \underline{\hspace{2cm}}$
- If  $m$  is NOT a multiple of 3, break it apart so that it is!

## EXAMPLES

13.  $\sqrt[3]{x^3}$

14.  $\sqrt[3]{64m^9}$

15.  $\sqrt[3]{p^7}$

16.  $-3\sqrt[3]{40w^{16}}$

17.  $\sqrt[3]{512xy^{10}}$

18.  $2\sqrt[3]{-250a^3b^4}$

19.  $\sqrt[3]{-32p^{17}q^8}$

20.  $3\sqrt[3]{128a^9b^{21}}$

21.  $7\sqrt[3]{-48xy^9z^5}$

22.  $\sqrt[3]{192r^8s^2t^{18}}$

SUMMARY: \_\_\_\_\_

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