

SC Algebra 1
8.4 Rational Exponents and Roots

Warm Up: Simplify each exponential expression

1) $w^2 * w^7$

2) $(2b^2f^5)^3$

3) $\frac{h^7j^5k}{h^3j^4}$

Powers Quick Review:

Rational Exponents:

"Like a _____ in a garden, this rule is _____. The _____ grows up top, while the bottom is the _____."

Speak Like A Mathematician:

$$x^{a/b} = \sqrt{\quad}$$

How can I meet today's standards?

*I can apply the properties of exponents when simplifying expressions with **rational exponents**.*

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Example 1:

Write each expression in radical form.

$7^{1/2}$

$2^{5/3}$

$6^{3/2}$

Example 2:

Write each expression in exponential form.

$(\sqrt{10})^3$

$(\sqrt[4]{2})^5$

$\sqrt[3]{2}$

Example 3:

Write each expression in radical form.

$(5x)^{-5/4}$

$(10n)^{3/2}$

$(6v)^{1.5}$

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Example 4:

Write each expression in exponential form.

$$\left(\sqrt[4]{m}\right)^3$$

$$\sqrt[4]{v}$$

$$\left(\sqrt[3]{3a}\right)^4$$

Example 5:

Simplify.

$$9^{1/2}$$

$$1000000^{1/6}$$

$$(x^6)^{1/2}$$

$$(64n^{12})^{-1/6}$$