

Extra Fractional Exponents

Remember...

$$\sqrt{6} \quad \sqrt[2]{6}$$

Remember...

$$\begin{array}{ll} \sqrt[3]{8} = & \sqrt[3]{125} = \\ \sqrt[3]{-8} = & \sqrt[4]{16} = \\ \sqrt[3]{27} = & \sqrt[3]{-64} = \end{array}$$

Writing radicals in exponential form

$$\sqrt[2]{7}$$

$$\sqrt[3]{4}$$

Writing radicals in exponential form

$$\begin{array}{l} \sqrt{3} \\ \sqrt[4]{-9} \end{array}$$

Writing radicals in exponential form

Write each of the following radicals in exponential form. Do not simplify.

1) $\sqrt{10}$

4) $\sqrt[5]{-12}$

2) $\sqrt[7]{5}$

3) $\sqrt[4]{14}$

Writing radicals in exponential form

$$(\sqrt[3]{5})^2$$

$$(\sqrt{6})^5$$

Radical to Exponent Conversion

$$(\sqrt[n]{a})^m = a^{m/n}$$

Writing radicals in exponential form

$$5) (\sqrt[5]{2})^3$$

$$6) (\sqrt[7]{10})^4$$

Simplifying Fractional Exponents

Simplify the following:

$$\begin{aligned} 7) \quad 4^{3/2} &= (\sqrt[2]{4})^3 \\ &= (2)^3 \\ &= 8 \end{aligned}$$

Simplifying Fractional Exponents

Simplify the following:

$$\begin{aligned} 8) \quad 32^{4/5} &= (\sqrt[5]{32})^4 \\ &= (2)^4 \\ &= 16 \end{aligned}$$

Simplifying Fractional Exponents

Simplify the following:

$$\begin{aligned} 9) \quad (-27)^{2/3} &= (\sqrt[3]{-27})^2 \\ &= (-3)^2 \\ &= 9 \end{aligned}$$

Simplifying Fractional Exponents

Simplify the following:

$$10) \quad (-16)^{5/2} = (\sqrt[2]{-16})^5$$

Remember...

$$x^2 \bullet x^3 = x^5$$

$$2^4 \bullet 2^5 = 2^9$$

Remember...

$$x^{2n} \bullet x^{3n} = x^{5n}$$

$$3^{4n} \bullet 3^n = 3^{5n}$$

Solving for Exponents

~~Simplify the following:~~

$$11) \quad 4^n \bullet 4^n \bullet 4^n = 4$$

Solving for Exponents

Simplify the following:

$$12) \quad 3^n \bullet 3^n \bullet 3^n \bullet 3^n = 3$$

Solving for Exponents

Simplify the following:

$$13) \quad 6^{(1/2)^n} \bullet 6^{(1/2)^n} = 36$$