

Name

7.3 ext.

Define and Use

Fractional Exponents

Alg I

I can use
fractional
exponents

* For all nonnegative numbers a , $\sqrt{a} = a^{1/2}$

Cube Root: Using the third power

$$\sqrt[3]{a} = a^{1/3}$$

Ch. 7 Quiz

Example 1/2/3:

$$1) 100^{3/2} = 100^{(1/2) \cdot 3} = \sqrt{100^3} = 10^3 = \boxed{1,000}$$

$$2) 121^{-1/2} = \frac{1}{121^{1/2}} = \frac{1}{\sqrt{121}} = \boxed{\frac{1}{11}}$$

$$3) 81^{-3/2} = \frac{1}{81^{3/2}} = \frac{1}{81^{1/2 \cdot 3}} = \frac{1}{\sqrt{81^3}} = \frac{1}{9^3} = \boxed{\frac{1}{729}}$$

$$4) 216^{2/3} = 216^{1/3 \cdot 2} = \sqrt[3]{216^2} = 6^2 = \boxed{36}$$

$$5) 27^{-1/3} = \frac{1}{27^{1/3}} = \frac{1}{\sqrt[3]{27}} = \boxed{\frac{1}{3}}$$

$$6) 343^{-2/3} = \frac{1}{343^{2/3}} = \frac{1}{343^{1/3 \cdot 2}} = \frac{1}{\sqrt[3]{343^2}} = \frac{1}{7^2} = \boxed{\frac{1}{49}}$$

$$7) 9^{7/2} \cdot 9^{-3/2} = 9^{7/2 + (-3/2)} = 9^{4/2} = 9^2 = \boxed{81}$$

$$8) \left(\frac{1}{16}\right)^{1/2} \left(\frac{1}{16}\right)^{-1/2} = \left(\frac{1}{16}\right)^{1/2 + (-1/2)} = \left(\frac{1}{16}\right)^0 = \boxed{1}$$