

Properties

1)  $a^m \cdot a^n = a^{m+n}$

2)  $(a^m)^n = a^{m \cdot n}$

3)  $(ab)^m = a^m \cdot b^m$

4)  $a^{-m} = \frac{1}{a^m}; a \neq 0$

5)  $a^0 = 1; a \neq 0$

6)  $\frac{a^m}{a^n} = a^{m-n}; a \neq 0$

7)  $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}; b \neq 0$

8)  $\sqrt[n]{a \cdot b} = \sqrt[n]{a} \cdot \sqrt[n]{b}$

9)  $\sqrt[n]{\frac{a}{b}} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}}; b \neq 0$

Practice

1)  $(3^{\frac{1}{2}})^4 = 3^{\frac{1}{2} \cdot 4} = 3^{\frac{4}{2}} = 3^2 = 9$

2)  $\frac{10^2}{10^{\frac{4}{3}}} = 10^{2 - \frac{4}{3}} = 10^{\frac{6}{3} - \frac{4}{3}} = 10^{\frac{2}{3}}$

3)  $125^{\frac{-1}{3}} = 5^{-1} = \frac{1}{5}$

4)  $8^{\frac{2}{3}} \cdot 8^{\frac{5}{6}} = 8^{\frac{2}{3} + \frac{5}{6}} = 8^{\frac{4}{6} + \frac{5}{6}} = 8^{\frac{9}{6}}$

5)  $(2^{\frac{1}{2}} \cdot 5^{\frac{1}{3}})^{\frac{1}{4}} = 2^{\frac{1}{2} \cdot \frac{1}{4}} \cdot 5^{\frac{1}{3} \cdot \frac{1}{4}} = 2^{\frac{1}{8}} \cdot 5^{\frac{1}{12}}$

6)  $\sqrt{18} \cdot \sqrt{27} = \sqrt{9 \cdot 2} \cdot \sqrt{9 \cdot 3} = 9\sqrt{6}$

7)  $\sqrt[3]{16} \cdot \sqrt[3]{24} = \sqrt[3]{4 \cdot 4 \cdot 4} \cdot \sqrt[3]{6} = 4\sqrt[3]{6}$

Algebra II

1-6C Support

09/14/2017

practice

$$8) \frac{\sqrt{200}}{\sqrt{8}} = \sqrt{25} = 5$$

$$9) \frac{\sqrt[5]{160}}{\sqrt[5]{5}} = \sqrt[5]{\frac{160}{5}} = \sqrt[5]{32} = 2$$

$$10) \sqrt[3]{128} = \sqrt[3]{64} \sqrt[3]{2} = 4\sqrt[3]{2}$$