Name____ Date__________

5.2 Notetaking with Vocabulary (continued)

Properties of Radicals

Let a and b be real numbers and let n be an integer greater than 1.

Property Name	Definition	Example
Product Property	$\sqrt[n]{a \bullet b} = \sqrt[n]{a} \bullet \sqrt[n]{b}$	$\sqrt[3]{4} \bullet \sqrt[3]{2} = \sqrt[3]{8} = 2$
Quotient Property	$\sqrt[n]{\dfrac{a}{b}} = \dfrac{\sqrt[n]{a}}{\sqrt[n]{b}}, b \neq 0$	$\dfrac{\sqrt[4]{162}}{\sqrt[4]{2}} = \sqrt[4]{\dfrac{162}{2}} = \sqrt[4]{81} = 3$

Notes:

Extra Practice

In Exercises 1–4, use the properties of rational exponents to simplify the expression.

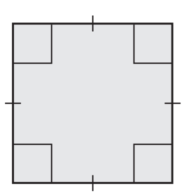
1. $\left(2^3 \bullet 3^3\right)^{-1/3}$

2. $\dfrac{10}{10^{-4/5}}$

3. $\left(\dfrac{52^5}{4^5}\right)^{1/6}$

4. $\dfrac{3^{1/3} \bullet 27^{2/3}}{8^{4/3}}$

5. Find simplified expressions for the perimeter and area of the given figure.



5.2 Notetaking with Vocabulary (continued)

In Exercises 6–8, use the properties of radicals to simplify the expression.

6. $\sqrt[6]{25} \bullet \sqrt[6]{625}$

7. $\dfrac{\sqrt{343}}{\sqrt{7}}$

8. $\dfrac{\sqrt[3]{25} \bullet \sqrt[3]{10}}{\sqrt[3]{2}}$

In Exercises 9–12, write the expression in simplest form.

9. $\sqrt[7]{384}$

10. $\sqrt[3]{\dfrac{5}{9}}$

11. $\dfrac{1}{4 - \sqrt{5}}$

12. $\dfrac{\sqrt{2}}{1 + \sqrt{6}}$

In Exercises 13–16, write the expression in simplest form. Assume all variables are positive.

13. $-2\sqrt[3]{5} + 40\sqrt[3]{5}$

14. $2(1250)^{1/4} - 5(32)^{1/4}$

15. $\dfrac{\sqrt[4]{x} \bullet \sqrt[4]{81x}}{\sqrt[4]{16x^{36}}}$

16. $\dfrac{21\left(x^{-3/2}\right)\left(\sqrt{y}\right)\left(z^{5/2}\right)}{7^{-1}\sqrt{x}\left(y^{-1/2}\right)z}$