~~Warm Up.~~

Given that $f(x) = 2x + 1$, find $g(x)$ if $g(x) = 2[f(x)]^2 - 1$.

~~Simplifying Radicals~~

List some numeric and variable perfect squares below.

~~RULE:~~ $\sqrt{a \cdot b} = \sqrt{a} \cdot \sqrt{b}$

Example:

$\sqrt{450}$

simplest radical form-

radicand-

Write the radicals in simplest form:

$3\sqrt{18x^3}$

$\sqrt{\frac{9x^2}{4y^6}}$

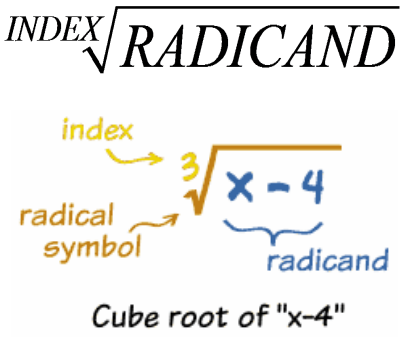
$\sqrt{8a^3b^5}$

What is the inverse of squaring a number?

So what would be the inverse of cubing a number?

What about the inverse of raising a number to the 4th power?

index-



More Examples:

$\sqrt[3]{16a^4b^3}$ $2\sqrt[3]{16a^3b^4c^5}$

$\sqrt[3]{16}\sqrt[3]{a^4}\sqrt[3]{b^3}$ $2\sqrt[3]{16}\sqrt[3]{a^3}\sqrt[3]{b^4}\sqrt[3]{c^5}$

$\sqrt[3]{8}\sqrt[3]{2}\sqrt[3]{a^3}\sqrt[3]{a}\sqrt[3]{b^3}$ $2\sqrt[3]{8}\sqrt[3]{2}\sqrt[3]{a^3}\sqrt[3]{b^3}\sqrt[3]{b}\sqrt[3]{c^3}\sqrt[3]{c^2}$

$2ab\sqrt[3]{2a}$ $2\cdot 2abc\sqrt[3]{2bc^2}$

$4abc\sqrt[3]{2b^2}$

$\sqrt[3]{54a^7b^4}$

$\sqrt[3]{54}\sqrt[3]{a^7}\sqrt[3]{b^4}$

$\sqrt[3]{27}\sqrt[3]{2}\sqrt[3]{a^6}\sqrt[3]{a}\sqrt[3]{b^3}\sqrt[3]{b}$

$3a^2b\sqrt[3]{2ab}$

$-2(-2)(-2)$
-8

$\sqrt[3]{\dfrac{a^6b^9}{-64}}$

$\dfrac{a^2b^3}{-4}$

$\sqrt[5]{-243a^6b^{12}}$

$\sqrt[5]{-243}\sqrt[5]{a^6}\sqrt[5]{b^{12}}$

$\sqrt[5]{a^5}\sqrt[5]{a}\sqrt[5]{b^{10}}\sqrt[5]{b^2}$

$-3ab^2\sqrt[5]{ab^2}$

$\sqrt[3]{27}$ 3

$\sqrt[3]{-64}$ -4

2.5198421

Extra Cuberoot Practice:

Work in small groups to complete the worksheet

HW: p. 93-94 #1, 10-45 multiples of 5

Writing About Mathematics

1. Explain the difference between $-\sqrt{36}$ and $\sqrt{-36}$.

Developing Skills

In 3–38, write each radical in simplest radical form. Variables in the radicand of an even index are non-negative. Variables occurring in the denominator of a fraction are non-zero.

10. $4\sqrt{363x^5y^7}$ **15.** $\sqrt[3]{375x^5y^6}$ **20.** $\sqrt{\frac{a^5}{2}}$ **25.** $\sqrt{\frac{5a}{18}}$ **30.** $\sqrt{0.08}$ **35.** $\sqrt{300c}$

Applying Skills

40. The length of one leg of an isosceles right triangle is 6 inches. Express the length of the hypotenuse in simplest radical form.

45. The area of a triangle is $\sqrt[5]{243x^5y^{10}}$ square units. If the length of a side of the triangle is $\sqrt[5]{x^5}$, express the length of the altitude to that side in simplest radical form.