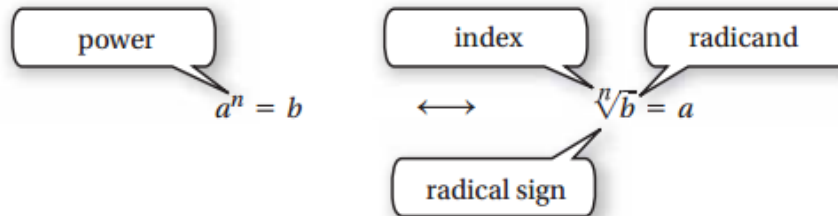


6-1 Roots and Radical Expressions



Recall square roots:

$$x^2 = 25$$

$$x = \pm\sqrt{25}$$

$$x = \pm 5$$

Why?

...be careful when roots are even!

Tip: Rewrite the expression so that the exponent matches the index (root).

Simplify completely.

$$\sqrt[3]{8} = \sqrt[3]{2^3} = 2$$

Simplify completely.

$$\sqrt[4]{\frac{1}{625}} = \sqrt[4]{\left(\frac{1}{5}\right)^4} = \pm \frac{1}{5}$$

Simplify completely.

$$\sqrt[6]{-729} =$$

*There are no real number solutions.
(You can't take an even root of a negative number.)*

Simplify completely.

$$\sqrt[4]{16x^4} = \sqrt[4]{2^4 x^4} = 2|x|$$

↑
similar to plus or minus,
but it is a variable.

Simplify completely.

$$\sqrt[4]{\frac{(x-2)^8}{(y+4)^4}} = \sqrt[4]{\frac{((x-2)^2)^4}{(y+4)^4}} = \frac{(x-2)^2}{|y+4|}$$