

AKA take the square root.

$$x^2 = 9$$

what multiplied by itself equals 9?

$$(3)(3) = 9 \quad (-3)(-3) = 9$$

$$x = \pm 3$$

Radicals

The most common radical is a square root.

$$\sqrt{4} = 2$$

when written as an expression
only use positive root.

$$-\sqrt{9} = -3$$

Square rooting is the opposite of squaring.

$$\begin{array}{ll} \sqrt{4^2} = 4 & (\sqrt{4})^2 = 4 \\ \sqrt{16} = \overset{+}{4} & (\overset{-}{2})^2 = 4 \end{array}$$

What happens when we square root a negative?

$$\begin{array}{l} \sqrt{-64} = \text{undefined} \\ \text{No Solution} \\ (8)(-8) = 64 \end{array}$$

$$\begin{array}{l} x^2 + 4 = 0 \\ -4 \\ \sqrt{x^2} = \sqrt{-4} \\ \text{No solution} \end{array}$$

Higher Order Radicals

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

what multiplied by itself
3 times = 8

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

$$\sqrt[4]{16}$$

$$\sqrt[11]{567}$$

Using the calculator

Square roots

2nd \rightarrow x^2 \rightarrow number

Cube roots

math \rightarrow 4: $\sqrt[3]{}$ \rightarrow ENTER \rightarrow number

Higher order radicals

$$\sqrt[7]{128} = 2$$

7 \rightarrow math \rightarrow 5: $x\sqrt{}$ \rightarrow number

$$\sqrt{\frac{16}{81}} = \frac{\sqrt{16}}{\sqrt{81}} = \frac{4}{9}$$

$$\sqrt{\frac{1}{25}} = \frac{1}{5}$$

P. 262
1, 2, 3, 10, 11, 12 (all parts)
15-19