Square Roots - Basics

Objective 1: What is a Square Root?

$\sqrt{16}$ is read as either "radical 16" or "the square root of 16".

Square root "undoes" the operation of squaring: $\sqrt{49} = 7$, because $7^2 = 49$.

Ex) Evaluate each radical expression.

$\sqrt{25} =$

$\sqrt{81} =$

Parts of a Radical

radical symbol → $\sqrt{a}$ ← radicand

When working in the Real Number System, the radicand cannot be negative.

Ex) Evaluate each radical expression.

$\sqrt{-36} =$

$-\sqrt{36} =$

$\sqrt{-9} =$

$-\sqrt{100} =$

Study Tip: Memorize the Perfect Squares and their Square Roots for 1 through 12

$1^2 = 1$	$2^2 = 4$	$3^2 = 9$	$4^2 = 16$	$5^2 = 25$	$6^2 = 36$
$7^2 = 49$	$8^2 = 64$	$9^2 = 81$	$10^2 = 100$	$11^2 = 121$	$12^2 = 144$
$\sqrt{1} = 1$	$\sqrt{4} = 2$	$\sqrt{9} = 3$	$\sqrt{16} = 4$	$\sqrt{25} = 5$	$\sqrt{36} = 6$
$\sqrt{49} = 7$	$\sqrt{64} = 8$	$\sqrt{81} = 9$	$\sqrt{100} = 10$	$\sqrt{121} = 11$	$\sqrt{144} = 12$

Objective 1 Extra Practice

Evaluate each radical expression without a calculator.

1. $\sqrt{81}$

2. $\sqrt{-25}$

3. $-\sqrt{16}$

Objective 2: Using a Calculator to find a Square Root

A number that is not a perfect square still has a square root, and we can find its approximate value using the square root button on a calculator.

You will need to learn how to access the square root button on your calculator. Below is an example using a TI-30XIIS calculator.

To evaluate $\sqrt{7}$, you would press the following buttons:

to display this:

Ex) Evaluate each radical expression using a calculator. Round your answers to the hundredths place.

$\sqrt{13} =$

$\sqrt{107} =$

$2 + \sqrt{29} =$

Ex) Evaluate each radical expression using a calculator. Round your answers to the ten-thousandths place.

$$\frac{1-\sqrt{47}}{3} =$$

$$\frac{-2+\sqrt{5}}{7} =$$

Objective 2 Extra Practice

Evaluate each radical expression using a calculator.
Round your answers to the thousandths place.

1. $\sqrt{159}$

2. $7-\sqrt{26}$

3. $\dfrac{-7+\sqrt{43}}{3}$