

Section 7.1

Section 7.1 Guided Notebook

Section 7.1 Radical Expressions

Read the list of “THINGS TO KNOW” and review any concepts you are unfamiliar with.

Section 7.1 Objective 1: Find Square Roots of Perfect Squares

What is the definition of **Principal and Negative Square Roots**?

Write a radical expression and label all its parts.

When will the square root simplify to a rational number?

Example 1:

Study the solutions for example 1 parts a - c, and record the answers below. Complete parts d - f on your own and check your answers by clicking on the link. If your answers are incorrect watch the video to find your error.

Evaluate.

a. $\sqrt{64}$

b. $-\sqrt{169}$

c. $\sqrt{-100}$

d. $\sqrt{\frac{9}{25}}$

e. $\sqrt{0.81}$

f. $\sqrt{0}$

Read and summarize the CAUTION statement on 7.1-5.

Section 7.1 Objective 2: Approximate Square Roots

What happens when the radicand is not a perfect square?

The principal square root of 12 should be between what two numbers? Explain why.

Example 2:

Use your calculator to approximate each square root and round the answer to three decimal places. Check that the answer is reasonable.

a. $\sqrt{5}$

b. $\sqrt{45}$

c. $\sqrt{103}$

Section 7.1 Objective 3: Simplify Radical Expressions of the Form: $\sqrt{a^2}$

Does $\sqrt{a^2}$ always equal a? Explain.

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Example 3:

Study the solutions for example 3 parts a - c, and record the answers below. Complete parts d - f on your own and check your answers by clicking on the link. If your answers are incorrect watch the video to find your error.

Simplify.

a. $\sqrt{(-12)^2}$

b. $\sqrt{(2x-5)^2}$

c. $\sqrt{100x^2}$

d. $\sqrt{x^2+12x+36}$

e. $\sqrt{9x^4}$

f. $\sqrt{y^6}$

Section 7.1 Objective 4: Find Cube Roots

What is the **Definition of Cube Roots**?

Can cube roots have negative numbers in the radicand? Why or why not?

Is absolute value used when simplifying cube roots?

Example 4:

Study the solutions for example 4 parts a - c, and record the answers below. Complete parts d - f on your own and check your answers by clicking on the link. If your answers are incorrect watch the video to find your error.

Simplify.

a. $\sqrt[3]{125}$

b. $\sqrt[3]{-1000}$

c. $\sqrt[3]{x^{15}}$

d. $\sqrt[3]{0.064}$

e. $\sqrt[3]{\frac{8}{27}}$

f. $\sqrt[3]{-64y^9}$

Read and summarize the CAUTION statement on 7.1-11.

Section 7.1 Objective 5: Find and Approximate n th Roots.

What is the **Definition of Principal n th Roots**?

What is the **index** of the radical expression and what does it indicate?

Write down the technique for **Simplifying Radical Expressions of the Form:** $\sqrt[n]{a^n}$

Example 5:

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Study the solutions for example 5 parts a - c, and record the answers below. Complete parts d - f on your own and check your answers by clicking on the link. If your answers are incorrect watch the video to find your error.

Simplify.

a. $\sqrt[4]{81}$

b. $\sqrt[5]{-32}$

c. $\sqrt[6]{\frac{1}{64}}$

d. $\sqrt[5]{x^{15}}$

e. $\sqrt[6]{(x-7)^6}$

f. $\sqrt[4]{-1}$

Read and summarize the CAUTION statement on 7.1-13.

Example 6:

Use your calculator to approximate each root and round the answer to three decimal places. Check that the answer is reasonable.

a. $\sqrt[3]{6}$

b. $\sqrt[4]{200}$

c. $\sqrt[5]{154}$