

Name Key Hour _____ Date _____

Roots and Cubes REVIEW

Directions: Estimate the following square roots to the *nearest hundredth*. Show all of your thinking.

1) $\sqrt{2}$

Handwritten work for $\sqrt{2}$:

- A box containing the number 3.
- A cloud containing the number .33.
- A long division problem: $3 \overline{) 1.00}$ with -9 and 10 written below.

Handwritten work for $\sqrt{2}$ using estimation:

- Arrows pointing from $2 \div 1 = 1$ to $\sqrt{1}$ and $\sqrt{4}$.
- Equation: $4 - 1 = 3$.
- Diagram showing $\sqrt{1}$, $\sqrt{2}$, and $\sqrt{4}$ on a number line.

Handwritten decimal approximation: $1.\underline{3}3$

2) $\sqrt{97}$

Handwritten work for $\sqrt{97}$:

- A box containing the number 16.
- A long division problem: $19 \overline{) 16.000}$ with -152 , 80 , and 40 written below.
- A cloud containing the number 842.

Handwritten work for $\sqrt{97}$ using estimation:

- Equation: $97 - 81 = 16$.
- Equation: $100 - 81 = 19$.
- Diagram showing $\sqrt{81}$, $\sqrt{97}$, and $\sqrt{100}$ on a number line.

Handwritten decimal approximation: $9.\underline{8}4$

Directions: Simplify each cube root.

3) $\sqrt[3]{343} = 7$

4) $\sqrt[3]{27} = 3$

5) $\sqrt[3]{216} = 6$

Evaluate:

6) The volume of a cube is 729 inches cubed. What is the length of each side of the cube?

Handwritten solution: $\sqrt[3]{729} = 9 \text{ inches}$

7) The length, height, and width of a cube is 10 centimeters cubed. What is the volume of the cube?

Handwritten solution: $10^3 = 1000 \text{ cm}^3$