ALBERT

Name _____ Date _____

Square Roots and Cube Roots Worksheet

Grade 8 · Common Core 8.EE.A.2

> Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.

Practice

Builds the skill step by step.

1. Evaluate $\sqrt{64}$.

2. Evaluate $\sqrt[3]{27}$.

3. Evaluate $\sqrt{121}$.

4. Evaluate $\sqrt[3]{125}$.

5. Solve $x^2 = 49$.

6. Solve $x^3 = 8$.

7. Which number is a perfect cube?

   A. 36

   B. 49

   C. 100

   D. 216

8. Evaluate $\sqrt{\frac{1}{4}}$.

9. Evaluate $\sqrt[3]{1000}$.

10. Which number is irrational?

    A. $\sqrt{36}$

    B. $\sqrt{2}$

    C. $\sqrt[3]{8}$

    D. $\sqrt{\frac{4}{9}}$

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On Level

Grade-level practice.

1. Solve $x^2 = 144$.

2. Solve $x^3 = 64$.

3. Solve $x^2 = \frac{9}{25}$.

4. Solve $x^3 = \frac{1}{8}$.

5. A square tile has an area of 81 square inches. How long is one side?

6. A cube has a volume of 343 cubic centimeters. How long is one edge?

7. Which equation has $x = -4$ as a solution?

   A. $x^3 = -64$

   B. $x^2 = -16$

   C. $x^3 = 64$

   D. $x^2 = 8$

8. Evaluate $\sqrt{0.36}$.

9. How many solutions does $x^2 = 25$ have?

   A. 0

   B. 1

   C. 2

   D. 3

10. Evaluate $\sqrt[3]{(-27)}$.

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Challenge

Multi-step and word problems that stretch it.

1. Solve $x^3 = -125$.

2. Solve $2x^2 = 98$.

3. Solve $x^3 + 5 = 69$.

4. A cube-shaped box holds 1,000 cubic inches. What is the area of one face?

5. Tia solves $x^2 = 36$ and writes $x = 18$. What is the correct solution?

   A. $x = 6$ only

   B. $x = 1{,}296$

   C. $x = 18$

   D. $x = 6$ or $x = -6$

6. Evaluate $\sqrt{49} + \sqrt[3]{64}$.

7. Solve $x^2 = 0.81$.

8. Which statement about $\sqrt{2}$ is true?

   A. $\sqrt{2} = 1.4$ exactly.

   B. $\sqrt{2}$ is rational because 2 is a whole number.

   C. $\sqrt{2}$ is irrational, so no fraction squares to exactly 2.

   D. $\sqrt{2} = \frac{7}{5}$.

9. A square garden has an area of 200 square feet. Its side length is between which two consecutive whole numbers of feet?

10. $x^3 = 27$ and $y^2 = 16$, where y is negative. Find $x + y$.