

Grade 8 · Square Roots and Cube Roots · Worksheet

Common Core 8.EE.A.2 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

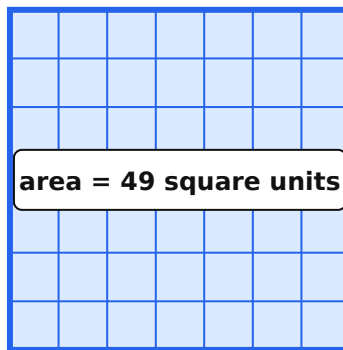
These problems practice Common Core standard 8.EE.A.2: evaluating square roots and cube roots of perfect squares and perfect cubes, and solving equations of the form $x^2 = p$ and $x^3 = p$. Early problems use whole numbers, then fractions and decimals.

The last seven problems are word problems about squares and cubes, including two estimates for numbers that are not perfect squares or cubes. Work from easiest to hardest.

Grade 8 Common Core: 8.EE.A.2

Problem 1: Square root of 49

Evaluate $\sqrt{49}$.



side = ?

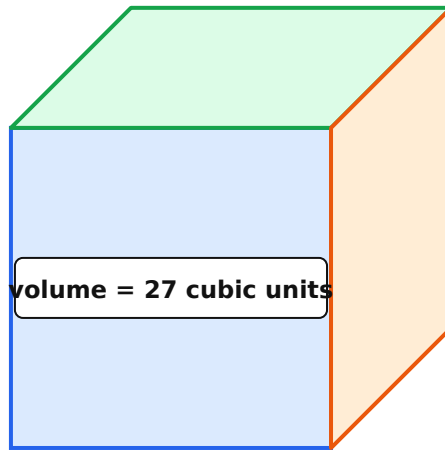
A square with area 49 square units.

Problem 2: Square root of 144

Evaluate $\sqrt{144}$.

Problem 3: Cube root of 27

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



edge = ?

A cube with volume 27 cubic units.

Problem 4: Cube root of 125

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

Problem 5: Cube root of a negative

Evaluate $\sqrt[3]{-64}$.

Problem 6: Two square roots

Solve $x^2 = 81$.

Problem 7: A cube equation

Solve $x^3 = 216$.

Problem 8: Another square equation

Solve $x^2 = 169$.

Problem 9: A negative cube

Solve $x^3 = -343$.

Problem 10: Fraction square

Solve $x^2 = \frac{4}{25}$.

Problem 11: Fraction cube

Solve $x^3 = \frac{8}{27}$.

Problem 12: Decimal square

Solve $x^2 = 0.64$.

Problem 13: Decimal cube

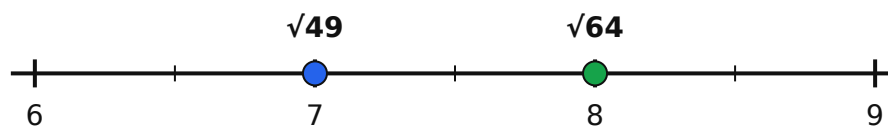
Solve $x^3 = 0.001$.

Problem 14: Undo, then take the root

Solve $x^2 + 6 = 70$.

Problem 15: Between two integers

Between which two consecutive integers is $\sqrt{50}$? Mark where it belongs on the number line.



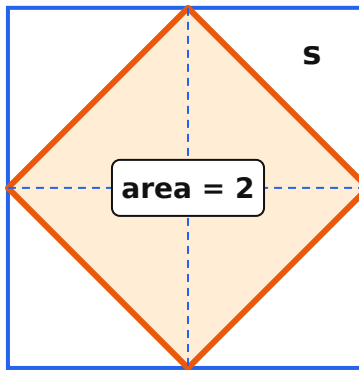
Two perfect squares sit at 7 and 8.

Problem 16: Cube root estimate

Between which two consecutive integers is $\sqrt[3]{100}$?

Problem 17: Which number is irrational?

Exactly one of $\sqrt{36}$, $\sqrt{2}$, $\sqrt[3]{8}$, $\sqrt{100}$ is irrational. Name it and explain how the others are rational.



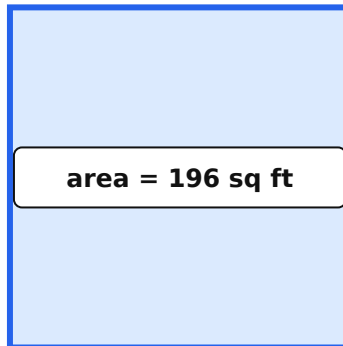
The big square has area 4; the tilted square has area 2
A square with area 2 has side $\sqrt{2}$.

Problem 18: Compare a root and a decimal

Is $\sqrt{30}$ less than or greater than 5.5? Show your reasoning.

Problem 19: Square garden fence

Maya's square garden has an area of 196 square feet. She puts a fence around all four sides. Find the side length and the total length of fence.

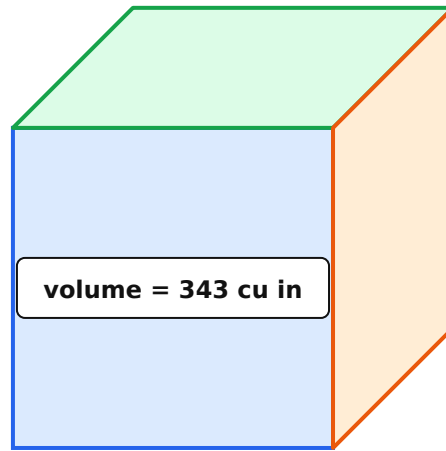


side = ?

Maya's square garden.

Problem 20: Gift box

A cube-shaped gift box holds 343 cubic inches. Find the edge length and the area of one face.



edge = ?

Ethan's cube-shaped gift box.

Problem 21: Square rug fringe

A square rug has an area of 20.25 square feet. Fringe costs \$1.50 per foot and goes on all four sides. Find the side length and the cost of the fringe.

Problem 22: Storage cube

A cube-shaped storage bin holds 1,728 cubic inches. Find its edge length in inches, then in feet.

Problem 23: Playground laps

A square playground has an area of 2,500 square feet. Jamal jogs 3 laps around its edge. How far does he jog?

Problem 24: Side of a square patio

Sofia's square patio has an area of 50 square feet. Estimate its side length to the nearest tenth of a foot.

Problem 25: Edge of a small cube

A cube has a volume of 40 cubic inches. Estimate its edge length to the nearest tenth of an inch.