

Grade 8 - Square Roots and Cube Roots - Test Answer Key

Common Core 8.EE.A.2 · maths-pdf.fr/en/

Use this answer key to score the square roots and cube roots test out of 20 points. Each solution shows the full work and a scoring guide, so partial credit can be given fairly when a student shows correct steps but makes an arithmetic slip.

Grade 8 · Common Core State Standards: **8.EE.A.2**

Question 1 - Evaluate roots [2 pts]

- a. 13
- b. 7

Scoring: 1 point for each correct value.

Question 2 - Roots of fractions [2 pts]

- a. $\frac{3}{7}$
- b. $\frac{1}{4}$

Scoring: 1 point for each correct value.

Question 3 - Solve [3 pts]

- a. $x=9$ or $x=-9$
- b. $x=5$
- c. No, -9 also works because $(-9)^2=81$.

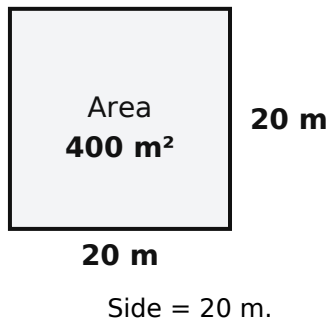
Scoring: 1 point for each part.

Question 4 - Solve with a coefficient [2 pts]

Divide by 5: $x^2=16$, so $x=4$ or $x=-4$.

Scoring: 1 point for $x^2=16$. 1 point for both solutions.

Question 5 - Square plot [3 pts]

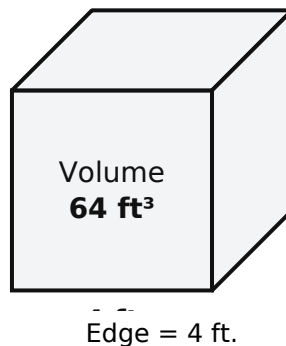


$$\text{Side} = \sqrt{400} = 20 \text{ m.}$$

$$\text{Fence} = 4 \cdot 20 = 80 \text{ m.}$$

Scoring: 1 point for the formula, 1 point for 20 m, 1 point for 80 m.

Question 6 - Cube tank [3 pts]



$$\text{Edge} = \sqrt[3]{64} = 4 \text{ ft.}$$

$$\text{Base area} = 4^2 = 16 \text{ square feet.}$$

Scoring: 1 point for the setup, 1 point for 4 ft, 1 point for 16 square feet.

Question 7 - Estimate [3 pts]

- a. $7^2 = 49$, $8^2 = 64$: between 7 and 8.
- b. $7.7^2 = 59.29$, $7.8^2 = 60.84$: 60 is closer to 59.29 (difference 0.71) than 60.84 (difference 0.84), so about 7.7.
- c. No, 60 is not a perfect square, so the root is irrational.

Scoring: 1 point per part.

Question 8 - Two solutions [2 pts]

Both 3 and -3 square to 9 because a negative times a negative is positive. Only 2 cubes to 8, and $(-2)^3 = -8$.

Scoring: 1 point for the square case with 3 and -3. 1 point for the cube case.

Total
20 points