

Grade 8 · Square Roots and Cube Roots · Quiz

Common Core 8.EE.A.2 · mathovore.fr

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

Ten multiple-choice questions check square roots, cube roots and the equations $x^2 = p$ and $x^3 = p$. Some questions use a figure. Pick the one correct answer, then read the explanation to learn from any mistake. Aim for 8 out of 10.

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

Questions

Question 1

What is the value of $\sqrt{64}$?

- A. 32
- B. 4
- C. 8
- D. 128

Question 2

What is the value of $\sqrt[3]{-125}$?

- A. -5
- B. 5
- C. -25
- D. 25

Question 3

Which shows all solutions of $x^2 = 100$?

- A. $x = 10$ only
- B. $x = 50$
- C. $x = -10$ only
- D. $x = 10$ or $x = -10$

Question 4

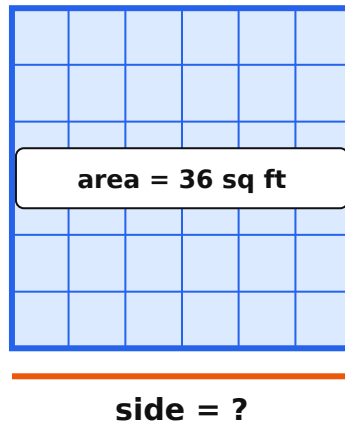
Which shows all solutions of $x^3 = 343$?

- A. $x = 7$ or $x = -7$
- B. $x = 49$
- C. $x = 7$

D. $x = \frac{343}{3}$

Question 5

The square has an area of 36 square feet. What is its side length?

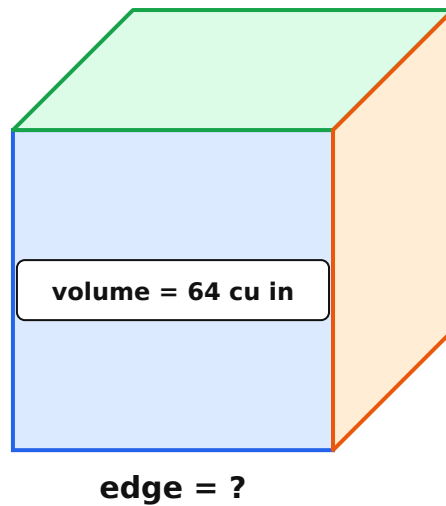


A square with area 36 square feet.

- A. 18 ft
- B. 12 ft
- C. 72 ft
- D. 6 ft

Question 6

The cube has a volume of 64 cubic inches. What is its edge length?



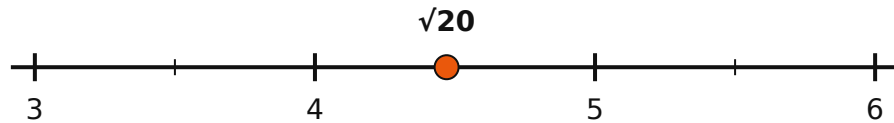
A cube with volume 64 cubic inches.

- A. 16 in
- B. 4 in
- C. 8 in

D. 32 in

Question 7

Between which two consecutive integers is $\sqrt{20}$?

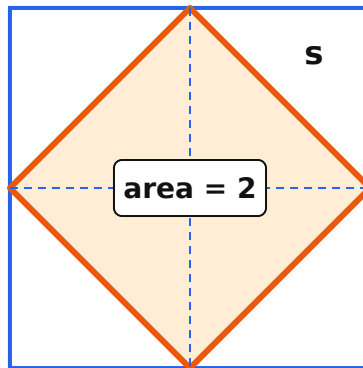


The point for $\sqrt{20}$.

- A. 3 and 4
- B. 4 and 5
- C. 5 and 6
- D. 9 and 10

Question 8

Which of these numbers is irrational?



The big square has area 4; the tilted square has area 2

A square with area 2 has side $\sqrt{2}$.

- A. $\sqrt{2}$
- B. $\sqrt{49}$
- C. $\sqrt[3]{27}$
- D. $\sqrt{\frac{1}{4}}$

Question 9

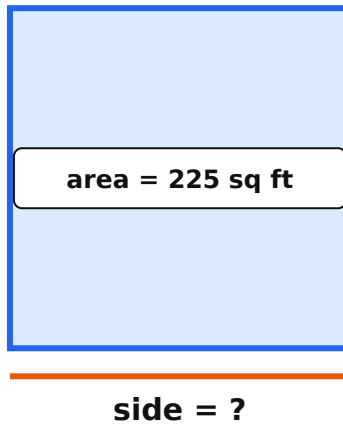
What is the positive solution of $x^2 = \frac{9}{64}$?

- A. $\frac{9}{32}$
- B. $\frac{3}{8}$
- C. $\frac{3}{32}$

D. $\frac{9}{32}$

Question 10

A square floor has an area of 225 square feet. How long is each side?



Square floor, area 225 square feet.

- A. 15 ft
- B. 112.5 ft
- C. 60 ft
- D. 25 ft

Answer key

1. **C** - $8 \cdot 8 = 64$. Dividing 64 by 2 gives 32, which is a common slip.
2. **A** - $(-5)(-5)(-5) = -125$. Cube roots keep the sign of the number; a positive 5 cubes to positive 125.
3. **D** - Both 10 and -10 square to 100. Halving 100 to get 50 confuses squaring with doubling.
4. **C** - $7^3 = 343$, but $(-7)^3 = -343$, so -7 is not a solution. A cube equation has one solution.
5. **D** - The side is $\sqrt{36} = 6$ ft. Dividing by 2 gives 18, which is a mistake.
6. **B** - The edge is $\sqrt[3]{64} = 4$ in, since $4 \cdot 4 \cdot 4 = 64$. Choosing 8 mixes up the cube root with the square root.
7. **B** - $4^2 = 16 < 20 < 25 = 5^2$. Using half of 20 would point to 10, which is not a root.
8. **A** - $\sqrt{49} = 7$, $\sqrt[3]{27} = 3$ and $\sqrt{\frac{1}{4}} = \frac{1}{2}$ are rational. No fraction squares to exactly 2.
9. **B** - Take the root of the top and bottom: $\sqrt{9} = 3$ and $\sqrt{64} = 8$. Rooting only one of them gives the wrong answers.
10. **A** - $\sqrt{225} = 15$ since $15 \cdot 15 = 225$. The number 60 would be the perimeter, not the side.

Remember:

- Standard 8.EE.A.2: solve $x^2 = p$ and $x^3 = p$ for small perfect squares and perfect cubes, and know that $\sqrt{2}$ is irrational.
- The equation $x^2 = p$ with $p > 0$ has two solutions, $\sqrt{p}$ and $-\sqrt{p}$; $x^3 = p$ has exactly one.
- Perfect squares to remember: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144.
- Perfect cubes to remember: 1, 8, 27, 64, 125, 216, 343, 512, 729, 1,000.
- The side of a square is the square root of its area; the edge of a cube is the cube root of its volume.