LESSON MAKER PRO

Square Root Connections

Use square areas to find perfect square roots.

GRADE 7 · 7.NS.3.b

7.NS.3.b "Describe the relationship between square roots and perfect squares.*"

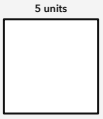
NAME _____ DATE _____

SQUARE PATTERNS

A perfect square is the product of a whole number multiplied by itself. The square root of a perfect square tells the side length of a square with that area.

WORKED EXAMPLE

Use the square below. Find its area, then find the square root of the area.

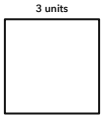


1. Area = 5 x 5 = 25 square units.
2. 25 is a perfect square because 5 x 5 = 25.
3. sqrt(25) = 5.

Answer: The area is 25 square units, and sqrt(25) = 5.

PRACTICE 6 problems

1 Use the square below. Find its area, then find the square root of the area.



ANSWER _____

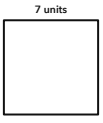
2 Find sqrt(64).

ANSWER _____

3 Which number is a perfect square: 48, 49, or 50? Then find its square root.

ANSWER _____

4 Use the square below. Find its area, then find the square root of the area.



ANSWER _____

5 A square has an area of 121 square inches. What is the length of one side?

ANSWER _____

6 Find sqrt(36) and sqrt(100).

ANSWER _____

APPLY IT Show your work

1 An esports club builds a square LED display using 144 equal light tiles. The tiles make a square with no gaps. How many tiles are in each row?

WORK SPACE

ANSWER _____

2 A student designs a square mural that covers 196 square feet. What is the mural's side length?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Without a calculator, decide whether sqrt(80) is closer to 8 or to 9. Explain using perfect squares.

WORK SPACE AND ANSWER

ANSWER KEY

Square Root Connections

GRADE 7 · 7.NS.3.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the square below. Find its area, then find the square root of the area.	**Area = 9 square units; sqrt(9) = 3.**
2	Find sqrt(64).	**8**
3	Which number is a perfect square: 48, 49, or 50? Then find its square root.	**49; sqrt(49) = 7.**
4	Use the square below. Find its area, then find the square root of the area.	**Area = 49 square units; sqrt(49) = 7.**
5	A square has an area of 121 square inches. What is the length of one side?	**11 inches**
6	Find sqrt(36) and sqrt(100).	**sqrt(36) = 6; sqrt(100) = 10.**

PART 2 · APPLY IT

1. **12 tiles** Because the display is square, the number of tiles in each row is sqrt(144). sqrt(144) = 12.
2. **14 feet** The side length of a square is the square root of its area. sqrt(196) = 14.

CHALLENGE

sqrt(80) is closer to 9. Since 8 x 8 = 64 and 9 x 9 = 81, sqrt(80) is between 8 and 9, and 80 is 1 away from 81.

Accept equivalent wording that correctly identifies a square root as the side length of a square with that area. For the challenge, students should identify 64 and 81 as the nearby perfect squares and conclude that sqrt(80) is closer to 9.