LESSON MAKER PRO

Root Quest

Find the numbers behind perfect squares and cubes.

GRADE 7 · 7A.AF.B.15.a

7A.AF.B.15.a "Evaluate square roots of perfect squares (less than or equal to 225) and cube roots of perfect cubes (less than or equal to 1000)."

NAME _____ DATE _____

THE BIG IDEA

A square root is a nonnegative number that makes the given number when multiplied by itself. A cube root makes the given number when multiplied by itself three times.

WORKED EXAMPLE

Find the cube root of 343.

1. $7 \times 7 = 49$.
2. $49 \times 7 = 343$.
3. So $7^3 = 343$.

Answer: 7

PRACTICE 6 problems

1 Find the square root of 81.

ANSWER _____

2 Find the cube root of 64.

ANSWER _____

3 Find the square root of 225.

ANSWER _____

4 Find the cube root of 512.

ANSWER _____

5 Find the square root of 144.

ANSWER _____

6 Find the cube root of 1000.

ANSWER _____

APPLY IT Show your work

1 For a game tournament, 121 chairs are set out in equal rows. The number of rows equals the number of chairs in each row. How many chairs are in each row?

WORK SPACE

ANSWER _____

2 A STEM club stacks 216 identical mini cubes into one large cube. How many mini cubes are along each edge?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Find the sum of the square root of 196 and the cube root of 729. Explain each root using a multiplication fact.

WORK SPACE AND ANSWER

Root Quest

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the square root of 81.	**9**
2	Find the cube root of 64.	**4**
3	Find the square root of 225.	**15**
4	Find the cube root of 512.	**8**
5	Find the square root of 144.	**12**
6	Find the cube root of 1000.	**10**

PART 2 · APPLY IT

1. **11 chairs** The number of chairs in each row is the square root of 121. Since 11 × 11 = 121, each row has 11 chairs.
2. **6 mini cubes** The number along each edge is the cube root of 216. Since 6 × 6 × 6 = 216, there are 6 mini cubes along each edge.

CHALLENGE

23. Since 14 × 14 = 196, the square root of 196 is 14. Since 9 × 9 × 9 = 729, the cube root of 729 is 9. Their sum is 14 + 9 = 23.

For the challenge, accept either order for the multiplication facts. The sum must be 23.