LESSON MAKER PRO

Square Root Quest

Find the nonnegative side length of perfect squares.

GRADE 7 · 7.NS.3.a

7.NS.3.a "Determine the positive square root of a perfect square from 0 to 400.*"

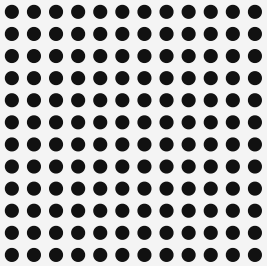
NAME _____ DATE _____

SQUARE ARRAYS AND ROOTS

When dots or tiles make a full square, count the dots along one side. That nonnegative side length is the principal square root of the total number of dots. For a square with zero tiles, the principal square root is 0.

WORKED EXAMPLE

The dots fill a square array. What is the nonnegative side length of the square array?

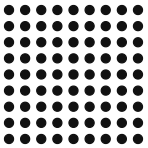


1. Count 12 dots along one side.
2. Multiply: 12 × 12 = 144.
3. The nonnegative side length for 144 dots is 12.

Answer: 12

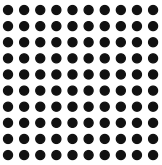
PRACTICE 6 problems

1 What is the nonnegative side length of this square array?



ANSWER _____

2 What is the nonnegative side length of this square array?



ANSWER _____

3 Find the principal square root of 49.

ANSWER _____

4 Find the principal square root of 169.

ANSWER _____

5 Find the principal square root of 324.

ANSWER _____

6 Find the principal square root of 36.

ANSWER _____

APPLY IT Show your work

1 The school gaming club marks off a square floor space for a tournament. The area is 225 square feet. What is the length of one side?

WORK SPACE

ANSWER _____

2 Rina is making a square photo collage with an area of 256 square inches. What is the side length of the collage?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A square screen has an area of 400 square centimeters. Explain how you know its nonnegative side length without listing every factor pair.

WORK SPACE AND ANSWER

ANSWER KEY

Square Root Quest

GRADE 7 · 7.NS.3.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	What is the nonnegative side length of this square array?	**9**
2	What is the nonnegative side length of this square array?	**10**
3	Find the principal square root of 49.	**7**
4	Find the principal square root of 169.	**13**
5	Find the principal square root of 324.	**18**
6	Find the principal square root of 36.	**6**

PART 2 · APPLY IT

1. **15 feet** A square with side length 15 has area 15 × 15, or 225. The side length is 15 feet.
2. **16 inches** Find the nonnegative number that multiplies by itself to make 256. Since 16 × 16 = 256, the side length is 16 inches.

CHALLENGE

20 centimeters, because 20 × 20 = 400. Since a side length cannot be negative, the principal square root is 20.

Accept only nonnegative principal square roots. For side-length questions, accept the correct number with or without the unit.