

SQUARE ROOTS OF PERFECT SQUARE

Subject

Mathematics

Prepared By

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Grade Level

5

Overview

This lesson plan covers teaching content for;

1. Recognizing the notation for square root ($\sqrt{}$)
2. Solving problems involving square roots of perfect square

Objectives

Students should be able to;

1. Define 'square root'.
2. Recognize the notation for square root ($\sqrt{}$).
3. Demonstrate an understanding of calculating square root.

Activity Starter/Instruction

1. Teacher explains to pupils that, the square root is the opposite of the square. They can think of it as the "root" of the square or the number that was used to make the square.
2. The sign for square root is: $\sqrt{}$. Teacher writes some examples of square root on the board.
3. The easiest way to find a square root is with a calculator. Another way is the try to guess and check method, this is where you guess the square root, check it out, and then make a better guess.

Guided Practice

Day 2/ Lesson 2: 15 Mins

1. To find the square root of a perfect square by using the factorization method when a given number is a perfect square:
2. Step 1: Resolve the given number into prime factors.
Step 2: Make pairs of similar factors.
Step 3: Take the product of prime factors, choosing one factor out of every pair.
3. Find the square root of perfect square by using prime factorization method:

Teacher Guide

Day 1/ Lesson 1: 15 Mins

1. Teacher asks, what is the square root of 25?
2. Teacher explains to pupils that to find the square root ($\sqrt{}$) of a given number, pupils need to figure out which number squared (multiplied by itself) equals that given number.
3. You want to find the square root of 25, so figure out which number squared (multiplied by itself) equals 25.
4. The number 5 squared equals 25:
 $5^2 = 5 \times 5 = 25$
So the square root of 25 is 5.
5. You can also get the same answer by thinking of "squared" and "square root" as opposites.
6. For example, you can square 5 to get 25:
 $5^2 = 25$
Now do the opposite. Take the square root of 25 to get 5:
 $\sqrt{25} = 5$
Either method shows that the square root of 25 is 5.

Materials Required

- White Board
- Marker
- Dice

Additional Resources

- <http://www.math.uakron.edu/amc/PreAlgebraAlgebra/>
- <https://www.mathsisfun.com/square-root.html>
- <https://www.mathinenglish.com/worksheetview.php?sheet=1>
- https://learnzillion.com/lesson_plans/469-solve-real-world-problems-involving-square-roots-by-using-the-pythagorean-theorem/?cardinality=1
- <https://www.onlinemath4all.com/finding-square-root-method.html>

Additional Notes

Resolving 484 as the product of primes, you have

$$484 = 2 \times 2 \times 11 \times 11$$

$$\sqrt{484} = \sqrt{(2 \times 2) \times (11 \times 11)} \\ = 2 \times 11 = 22$$

4. Therefore, $\sqrt{484} = 22$, let pupils try other examples as well.

Guided Practice

Day 3/ Lesson 3: 20mins

1. Engage pupils in practice problems. Pupils will copy the problem in their book or on their dry erase board and solve.
 2. Make the number under the radical sign random and unpredictable with the help of a dice, and let pupils solve and decide if it's a perfect square or not.
 3. Let it be a competition between the boys and girls, they each roll a dice to find the next number to take the square root of. Boys have a dice and the girls have a dice also.
 4. After rolling the dice, if a boy roll the dice to 5 and a girl roll the dice to 6 i.e. they will find $\sqrt{56}$.
 5. Two selected player will race to see who could find the square root first and if it's a perfect square. However, everybody will solve every problem in their book or on their dry erase board.
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Summary	Assessment Activity	Assessment Activity
Ask volunteers to provide answers to the problems.	Pupils need to be able to recognize the notion for square root ($\sqrt{}$). Make sure that pupils understand how to solve a problem.	Assess if pupils can: 1. Solve problems involving square roots of perfect square correctly.