

## G8 Playlist: Finding Roots of Perfect Squares and Perfect Cubes

Aligns with *CCSS.MATH.CONTENT.8.EE.2*: Use square root and cube root symbols to represent solutions to equations of the form  $x^2 = p$  and  $x^3 = p$ , where  $p$  is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that  $\sqrt{2}$  is irrational.

### Related Standards

- 6.EE.1 - Write and evaluate numerical expressions involving whole-number exponents.
- 6.EE.A.2C - Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
- N-RN.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.

PREVIEW



## Objectives

In this module, you will learn and practice the following skills:

- Find square roots of numbers in the form  $x^2 = p$ .
- Find cube roots of numbers in the form  $x^3 = p$ .
- Know that  $\sqrt{2}$  is irrational.

Let's get started!

## Key Terms

- A **radical** is the symbol we place over a number to show we are finding its square or cube root.
- A **radicand** is the name of the number inside the radical.
- The **index** is the small number that denotes whether we are dealing with a square root or cube root.
- A **perfect square** is the result of multiplying a number by itself. For example, 4 is a perfect square because 2 multiplied by itself equals 4.
- A **perfect cube** is the result of multiplying a number as a factor 3 times. For example, 8 is a perfect cube because  $2 \cdot 2 \cdot 2 = 8$ .
- The **square root** of a number,  $x$ , is the number that, when multiplied by itself, equals  $x$ . For example, the square root of 16 is 4, because  $4 \cdot 4 = 16$ . Finding the square root of a number is the inverse operation of squaring a number.
- The **cube root** of a number,  $x$ , is the number that, when multiplied as a factor three times, equals  $x$ . For example, the cube root of 27 is 3, because  $3 \cdot 3 \cdot 3 = 27$ . Finding the cube root of a number is the inverse operation of cubing a number.
- An **integer** is a whole number that is positive, negative, or zero.

