

BIG IDEAS

For Your Notebook

Big Idea 1

TEKS 2A.9.A

Graphing Square Root Functions

You can graph a square root function $y = a\sqrt{x - h} + k$ and compare its graph with the graph of the parent function, $y = \sqrt{x}$, based on the constants a , h , and k .

Constant	Comparison of graphs
a	<ul style="list-style-type: none"> When $a > 0$, the graph is a vertical stretch or shrink of the parent graph. When $a < 0$, the graph is a vertical stretch or shrink with a reflection in the x-axis of the parent graph.
h	The graph is a horizontal translation of the parent graph.
k	The graph is a vertical translation of the parent graph.

Big Idea 2

TEKS 2A.2.A

Using Properties of Radicals in Expressions and Equations

You can use the properties of radicals to simplify radical expressions and to solve radical equations.

Product property of radicals	$\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$ where $a \geq 0$ and $b \geq 0$
Quotient property of radicals	$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$ where $a \geq 0$ and $b > 0$

Big Idea 3

TEKS 2A.9.D

Working with Radicals in Geometry

You can use radicals to solve problems involving the following geometric theorems and formulas.

Pythagorean theorem	If a triangle is a right triangle, then the sum of the squares of the lengths of the legs, a and b , equals the square of the length of the hypotenuse c . $a^2 + b^2 = c^2$
Converse of Pythagorean theorem	If a triangle has side lengths a , b , and c such that $a^2 + b^2 = c^2$, then the triangle is a right triangle.
Distance formula	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Midpoint formula	$M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$