

Square Root Functions

Name: _____

Date: _____

Concepts

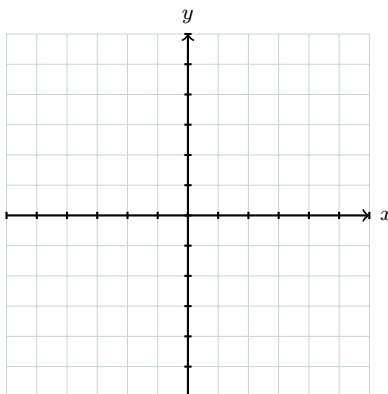
- Finding the Rule of a Square Root Function
- Graphing a Square Root Function
- Solving Problems Involving the Square Root Function
- The Inverse of the Square Root Function
- The Properties of the Square Root Function
- The Square Root Function

Finding the Rule of a Square Root Function

1. A square root function has its endpoint at $(2, 1)$ and passes through $(11, 7)$. Find its rule in the form $f(x) = a\sqrt{x - h} + k$, then state its domain and range.

Graphing a Square Root Function

2. Sketch $f(x) = 2\sqrt{x - 1} - 3$ on the grid, using at least three exact points. State the domain, the range and the zero of the function.



Solving Problems Involving the Square Root Function

- 3.** On wet asphalt, investigators estimate a car's speed just before braking, in km/h, from the length s of its skid marks in metres by $v(s) = 12\sqrt{s}$.
- a) Estimate the speed of a car that left 25 m of skid marks.
 - b) A driver claims to have been travelling at 90 km/h. How long would the skid marks be?

The Inverse of the Square Root Function

- 4.** Let $f(x) = 2\sqrt{x+3} - 1$. Find the rule of f^{-1} , together with its domain and its range.

The Properties of the Square Root Function

- 5.** Consider $f(x) = -2\sqrt{x-1} + 6$.
- a) State the domain and the range.
 - b) Is f increasing or decreasing? Justify with the sign of a .
 - c) Find the zero of f , and explain why f has no y -intercept.

The Square Root Function

6. At a water park, the speed of a rider at the bottom of a straight slide is modelled by $v(h) = 4\sqrt{h}$, where h is the vertical drop in metres and v is in m/s.

- a) Find the speed produced by a drop of 9 m.
- b) What drop is needed to reach 26 m/s?

Want the harder problems and the worked solutions?

The *Challenge Problems* set and the *Answer Keys* for Square Root Functions — with the reasoning written out in full — are available at tutorinmontreal.ca.