



## Lesson Objectives (p. 619):

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## Vocabulary

1. Radical function (p. 619): \_\_\_\_\_

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2. Square-root function (p. 619): \_\_\_\_\_

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## Key Concepts

3. Transformations of Square Root Function  $f(x) = \sqrt{x}$  (p. 620):

TRANSFORMATION	$f(x)$ NOTATION	EXAMPLES
Vertical translation		
Horizontal translation		
Vertical stretch or compression		
Horizontal stretch/compression		
Reflection		


**Lesson Objectives** (p. 619):

graph radical function and inequalities; transform radical functions by  
 changing parameters.

**Vocabulary**

1. Radical function (p. 619): a radical function whose rule is a radical expression.
2. Square-root function (p. 619): a radical function involving  $\sqrt{x}$ .

**Key Concepts**

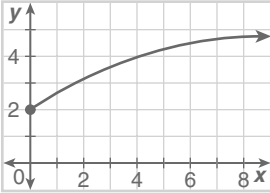
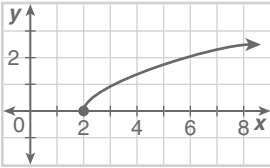
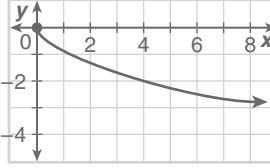
3. Transformations of Square Root Function  $f(x) = \sqrt{x}$  (p. 620):

TRANSFORMATION	$f(x)$ NOTATION	EXAMPLES
Vertical translation	$f(x) + k$	$y = \sqrt{x} + 3$ 3 units up $y = \sqrt{x} - 4$ 4 units down
Horizontal translation	$f(x - h)$	$y = \sqrt{x - 2}$ 2 units right $y = \sqrt{x + 1}$ 1 unit left
Vertical stretch or compression	$af(x)$	$y = 6\sqrt{x}$ vertical stretch by 6 $y = \frac{1}{2}\sqrt{x}$ vertical compression by $\frac{1}{2}$
Horizontal stretch/compression	$f\left(\frac{1}{b}x\right)$	$y = \sqrt{\frac{1}{5}x}$ horizontal stretch by 5 $y = \sqrt{3x}$ horizontal compression by $\frac{1}{3}$
Reflection	$-f(x)$ $f(-x)$	$y = -\sqrt{x}$ across x-axis $y = \sqrt{-x}$ across y-axis

4. **Get Organized** In each box, give an example of the transformation of the square-root function  $f(x) = \sqrt{x}$ . (p. 623).

TRANSFORMATION	EQUATION	GRAPH
Vertical translation		
Horizontal translation		
Reflection		
Vertical stretch		

4. **Get Organized** In each box, give an example of the transformation of the square-root function  $f(x) = \sqrt{x}$ . (p. 623).

TRANSFORMATION	EQUATION	GRAPH
Vertical translation	$g(x) = \sqrt{x} + 2$	
Horizontal translation	$g(x) = -\sqrt{x - 2}$	
Reflection	$g(x) = -\sqrt{x}$	
Vertical stretch	$g(x) = 2\sqrt{x}$	