

Algebra II Honors Chapter 5 Radical Functions Sample Test Questions

Lesson 112 | Algebra II | Radicals and rational exponents • Graph transformations

<https://www.youtube.com/watch?v=POBEhYjcy4U>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01 Simplify $\sqrt{1872} + \sqrt{1053}$ exactly.

02 Describe the transformations from $y = \sqrt{x}$ to $y = -5\sqrt{x - (4)} + 9$. Give domain, range, and endpoint.

03 Evaluate $729^{(2/3)}$ and simplify $x^{(1/2)} \cdot x^{(5/2)}$ for $x > 0$.

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04

Describe the transformations from $y = \sqrt{x}$ to $y = -6\sqrt{x - (-5)} + 2$. Give domain, range, and endpoint.

05

Solve $\sqrt{x + 9} = 5$. Check for extraneous solutions.

06

Describe the transformations from $y = \sqrt{x}$ to $y = -2\sqrt{x - (-2)} + 6$. Give domain, range, and endpoint.

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01

Simplify $\sqrt{1872} + \sqrt{1053}$ exactly.

Extract the square factors: $12\sqrt{13} + 9\sqrt{13} = 21\sqrt{13} = 21 \cdot \sqrt{13}$.

02

Describe the transformations from $y = \sqrt{x}$ to $y = -5\sqrt{x - (4)} + 9$. Give domain, range, and endpoint.

Shift horizontally by 4, stretch vertically by 5, reflect across the x-axis, and move up 9. Domain $x \geq 4$; range $y \leq 9$; endpoint (4,9).

03

Evaluate $729^{(2/3)}$ and simplify $x^{(1/2)} \cdot x^{(5/2)}$ for $x > 0$.

Take the cube root then square: $(9)^2 = 81$. Add exponents for the same base: $x^{(6/2)}$.

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04

Describe the transformations from $y = \sqrt{x}$ to $y = -6\sqrt{x - (-5)} + 2$. Give domain, range, and endpoint.

Shift horizontally by -5, stretch vertically by 6, reflect across the x-axis, and move up 2. Domain $x \geq -5$; range $y \leq 2$; endpoint $(-5, 2)$.

05

Solve $\sqrt{x + 9} = 5$. Check for extraneous solutions.

Square both sides: $x + 9 = 25$; $x = 16$. Check: $\sqrt{16 + 9} = 5$, so it is valid.

06

Describe the transformations from $y = \sqrt{x}$ to $y = -2\sqrt{x - (-2)} + 6$. Give domain, range, and endpoint.

Shift horizontally by -2, stretch vertically by 2, reflect across the x-axis, and move up 6. Domain $x \geq -2$; range $y \leq 6$; endpoint $(-2, 6)$.