

Algebra II Honors Big Idea Chapter 5 Radical Functions part 1

Lesson 110 | Algebra II | Radicals and rational exponents • Graph transformations

https://www.youtube.com/watch?v=_5Lmgntb9s

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01 Simplify $\sqrt{784} + \sqrt{144}$ exactly.

02 Describe the transformations from $y = \sqrt{x}$ to $y = -10\sqrt{x - (-7)} + 12$. Give domain, range, and endpoint.

03 Evaluate $2197^{(2/3)}$ and simplify $x^{(1/2)} \cdot x^{(6/2)}$ for $x > 0$.

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04

Describe the transformations from $y = \sqrt{x}$ to $y = -13\sqrt{(x - (-8))} + 6$. Give domain, range, and endpoint.

05

Solve $\sqrt{(x + 14)} = 9$. Check for extraneous solutions.

06

Describe the transformations from $y = \sqrt{x}$ to $y = -14\sqrt{(x - (0))} + 12$. Give domain, range, and endpoint.

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01 Simplify $\sqrt{784} + \sqrt{144}$ exactly.

Extract the square factors: $14\sqrt{4} + 6\sqrt{4} = 20\sqrt{4} = 40$.

02 Describe the transformations from $y = \sqrt{x}$ to $y = -10\sqrt{x - (-7)} + 12$. Give domain, range, and endpoint.

Shift horizontally by -7, stretch vertically by 10, reflect across the x-axis, and move up 12. Domain $x \geq -7$; range $y \leq 12$; endpoint $(-7, 12)$.

03 Evaluate $2197^{(2/3)}$ and simplify $x^{(1/2)} \cdot x^{(6/2)}$ for $x > 0$.

Take the cube root then square: $(13)^2 = 169$. Add exponents for the same base: $x^{(7/2)}$.

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04

Describe the transformations from $y = \sqrt{x}$ to $y = -13\sqrt{(x - (-8))} + 6$. Give domain, range, and endpoint.

Shift horizontally by -8, stretch vertically by 13, reflect across the x-axis, and move up 6. Domain $x \geq -8$; range $y \leq 6$; endpoint $(-8, 6)$.

05

Solve $\sqrt{x + 14} = 9$. Check for extraneous solutions.

Square both sides: $x + 14 = 81$; $x = 67$. Check: $\sqrt{67 + 14} = 9$, so it is valid.

06

Describe the transformations from $y = \sqrt{x}$ to $y = -14\sqrt{(x - (0))} + 12$. Give domain, range, and endpoint.

Shift horizontally by 0, stretch vertically by 14, reflect across the x-axis, and move up 12. Domain $x \geq 0$; range $y \leq 12$; endpoint $(0, 12)$.