

Algebra II Honors Big Idea Chapter 5 Radical Functions Part II

Lesson 111 | Algebra II | Radicals and rational exponents • Graph transformations

<https://www.youtube.com/watch?v=o0JPODSaEzY>

Related review: exact coverage needs teacher confirmation.

Name: _____ Date: _____ Show your reasoning.

01 Simplify $\sqrt{320} + \sqrt{845}$ exactly.

02 Describe the transformations from $y = \sqrt{x}$ to $y = -14\sqrt{x - (-1)} + 4$. Give domain, range, and endpoint.

03 Evaluate $64^{(2/3)}$ and simplify $x^{(1/2)} \cdot x^{(4/2)}$ for $x > 0$.

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04

Describe the transformations from $y = \sqrt{x}$ to $y = -2\sqrt{x - (-8)} + 5$. Give domain, range, and endpoint.

05

Solve $\sqrt{x + 7} = 10$. Check for extraneous solutions.

06

Describe the transformations from $y = \sqrt{x}$ to $y = -8\sqrt{x - (-1)} + 10$. Give domain, range, and endpoint.

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01 Simplify $\sqrt{320} + \sqrt{845}$ exactly.

Extract the square factors: $8\sqrt{5} + 13\sqrt{5} = 21\sqrt{5} = 21 \cdot \sqrt{5}$.

02 Describe the transformations from $y = \sqrt{x}$ to $y = -14\sqrt{x - (-1)} + 4$. Give domain, range, and endpoint.

Shift horizontally by -1, stretch vertically by 14, reflect across the x-axis, and move up 4. Domain $x \geq -1$; range $y \leq 4$; endpoint $(-1, 4)$.

03 Evaluate $64^{(2/3)}$ and simplify $x^{(1/2)} \cdot x^{(4/2)}$ for $x > 0$.

Take the cube root then square: $(4)^2 = 16$. Add exponents for the same base: $x^{(5/2)}$.

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04

Describe the transformations from $y = \sqrt{x}$ to $y = -2\sqrt{x - (-8)} + 5$. Give domain, range, and endpoint.

Shift horizontally by -8, stretch vertically by 2, reflect across the x-axis, and move up 5. Domain $x \geq -8$; range $y \leq 5$; endpoint $(-8, 5)$.

05

Solve $\sqrt{x + 7} = 10$. Check for extraneous solutions.

Square both sides: $x + 7 = 100$; $x = 93$. Check: $\sqrt{93 + 7} = 10$, so it is valid.

06

Describe the transformations from $y = \sqrt{x}$ to $y = -8\sqrt{x - (-1)} + 10$. Give domain, range, and endpoint.

Shift horizontally by -1, stretch vertically by 8, reflect across the x-axis, and move up 10. Domain $x \geq -1$; range $y \leq 10$; endpoint $(-1, 10)$.