

Watch. Practice. Understand. | Lesson 110

Algebra II Honors Big Idea Chapter 5 Radical Functions part 1

Watch the matching video: https://www.youtube.com/watch?v=_5Lmgntvb9s

Practice focus: Radicals and rational exponents

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Simplify $\sqrt{72}$.

02 Simplify $3\sqrt{8} - \sqrt{18} + 2\sqrt{2}$.

03 Evaluate $27^{(2/3)}$ and $16^{(-3/4)}$.

04 Solve $\sqrt{x + 5} = x - 1$.

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Name: _____ Date: _____ Show your reasoning and check units.

05 Describe $y = -2(x - 3)^2 + 1$ relative to $y = x^2$.

06 Find the endpoint and domain of $y = \sqrt{x + 4} - 2$.

07 For $y = |x - 2| + 3$, find the minimum and x-intercepts.

08 A point (2, 5) lies on $y = f(x)$. Where does it move on $y = 3f(x - 1) - 4$?

Worked answers | Lesson 110

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01 Simplify $\sqrt{72}$.

$$72 = 36(2), \text{ so } \sqrt{72} = 6\sqrt{2}.$$

02 Simplify $3\sqrt{8} - \sqrt{18} + 2\sqrt{2}$.

$$6\sqrt{2} - 3\sqrt{2} + 2\sqrt{2} = 5\sqrt{2}.$$

03 Evaluate $27^{(2/3)}$ and $16^{(-3/4)}$.

$$27^{(1/3)} = 3, \text{ then square: } 9. \quad 16^{(1/4)} = 2, \text{ then reciprocal cube: } 1/8.$$

04 Solve $\sqrt{x + 5} = x - 1$.

$$\text{Require } x \geq -1. \text{ Squaring gives } x + 5 = x^2 - 2x + 1, \text{ so } (x - 4)(x + 1) = 0. \text{ Only } x = 4 \text{ checks.}$$

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05 Describe $y = -2(x - 3)^2 + 1$ relative to $y = x^2$.

Shift right 3, stretch vertically by 2, reflect across the x-axis, and shift up 1.

06 Find the endpoint and domain of $y = \sqrt{x + 4} - 2$.

Endpoint $(-4, -2)$; require $x + 4 \geq 0$, so domain $[-4, \text{infinity})$.

07 For $y = |x - 2| + 3$, find the minimum and x-intercepts.

Minimum 3 at $x = 2$. There are no x-intercepts because $y \geq 3$.

08 A point $(2, 5)$ lies on $y = f(x)$. Where does it move on $y = 3f(x - 1) - 4$?

The x-coordinate increases by 1 and y becomes $3(5) - 4$. New point: $(3, 11)$.