

## Watch. Practice. Understand. | Lesson 111

Algebra II Honors Big Idea Chapter 5 Radical Functions Part II

Watch the matching video: <https://www.youtube.com/watch?v=o0JPODSaEzY>

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

---

---

## Watch. Practice. Understand. | Lesson 111

Algebra II Honors Big Idea Chapter 5 Radical Functions Part II

Watch the matching video: <https://www.youtube.com/watch?v=o0JPODSaEzY>

Practice focus: Graph transformations

Original extra practice matched to the listed lesson topic.

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 111

Algebra II Honors Big Idea Chapter 5 Radical Functions Part II

Watch the matching video: <https://www.youtube.com/watch?v=o0JPODSaEzY>

Practice focus: Radicals and rational exponents

Original extra practice matched to the listed lesson topic.

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

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

## Worked answers | Lesson 111

Algebra II Honors Big Idea Chapter 5 Radical Functions Part II

Watch the matching video: <https://www.youtube.com/watch?v=o0JPODSaEzY>

Practice focus: Graph transformations

Original extra practice matched to the listed lesson topic.

**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:  $(3, 11)$ .