

$$38. \left(a^{-\frac{2}{3}}\right)^{-\frac{1}{2}} = a^{\frac{2}{3}} = a^{\frac{1}{9}}$$

$$(33) \quad r = \left(\frac{3V}{4\pi}\right)^{\frac{1}{3}}$$

$$r = \sqrt[3]{\frac{3V}{4\pi}}$$

$$(33) \quad r = \sqrt[3]{\frac{3(413)}{4\pi}}$$

$$\sqrt[3]{\left(\frac{3 \times 413}{4\pi}\right)}$$

$$r = 4.62 \text{ in}$$

$$22. \sqrt[3]{62} = 62^{\frac{1}{3}}$$

$$24. \sqrt[3]{5x^2y} = \sqrt[3]{5} \sqrt[3]{x^2} \sqrt[3]{y}$$

$$= 5^{\frac{1}{3}} x^{\frac{2}{3}} y^{\frac{1}{3}}$$

$$(19) \quad \sqrt[5]{c^2} = \left(\sqrt[5]{c}\right)^2$$

$$(30) \quad 8^{\frac{3}{2}} \cdot 8^{\frac{5}{2}} = 8^{\frac{8}{2}} = 8^4 =$$

$$x^2 \cdot x^5 = x^7$$

Step 1 — Isolate the radical

1 Solve each equation.

a. $\sqrt{x+1} + 2 = 4$

$$(\sqrt{x+1})^2 = (2)^2$$

$$x+1 = 4$$

$$x = 3$$

$$\begin{aligned} \sqrt{3+1} + 2 &= 4 \\ \sqrt{4} + 2 &= 4 \\ 2 + 2 &= 4 \\ 4 &= 4 \checkmark \end{aligned}$$

2B. $(2y + 6)^{\frac{1}{4}} - 2 = 0$

$$\sqrt[4]{2y+6} - 2 = 0$$

$$(\sqrt[4]{2y+6})^4 = (2)^4$$

$$2y+6 = 16$$

$$2y = 10$$

$$y = 5$$

$$\begin{aligned} \sqrt[4]{2(5)+6} - 2 &= 0 \\ \sqrt[4]{16} - 2 &= 0 \\ 2 - 2 &= 0 \end{aligned}$$

$$\text{b. } (\sqrt{x-15})^2 = (3-\sqrt{x})^2$$

$$(3-\sqrt{x})(3-\sqrt{x})$$

$$\sqrt{x} \cdot \sqrt{x} = \sqrt{x^2}$$

$$x-15 = 9 - 3\sqrt{x} - 3\sqrt{x} + x$$

$$\begin{array}{rclcl} x-15 & = & 9 & -6\sqrt{x} & +x \\ -x & -9 & -9 & -x & \end{array}$$

$$\frac{-24}{-6} = \frac{-6\sqrt{x}}{-6}$$

$$(4)^2 = (\sqrt{x})^2$$

$$\cancel{16=x}$$

no solution

$$\begin{aligned} \sqrt{16-15} &= 3-\sqrt{16} \\ \sqrt{1} &= 3-4 \\ 1 &= -1 \end{aligned}$$

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