Solve Radical Equations

KEY CONCEPT *For Your Notebook*

Solving Radical Equations

To solve a radical equation, follow these steps:

STEP 1 **Isolate** the radical on one side of the equation, if necessary.

STEP 2 **Raise** each side of the equation to the same power to eliminate the radical and obtain a linear, quadratic, or other polynomial equation.

STEP 3 **Solve** the polynomial equation using techniques you learned in previous chapters. Check your solution.

$$__ - 9 = -1$$
$$+9 \qquad +9$$
$$(\sqrt[3]{x})^3 = 8^3$$
$$x = 512$$

$$\sqrt[3]{512} - 9 = -1$$
$$8 - 9 = -1$$
$$\checkmark$$

$$(_____)^3 = 4^3$$

DO NOT SUBTRACT 25 NOW!

$$x + 25 = 64$$
$$-25 \qquad -25$$
$$x = 39$$

$$\sqrt[3]{39+25} = 4$$
$$\sqrt[3]{64} = 4$$
$$\checkmark$$

$$\frac{2 \cdot _____}{2} = \frac{4}{2}$$
$$(\sqrt[3]{x-3})^3 = 2^3$$
$$x - 3 = 8$$
$$x = 11$$

$$2\sqrt[3]{11-3} = 4$$
$$2\sqrt[3]{8} = 4$$
$$2 \cdot 2 = 4$$
$$\checkmark$$

$$\frac{7____}{7} = \frac{56}{7}$$
$$(x^{\frac{3}{5}})^{\frac{5}{3}} = 8^{\frac{5}{3}}$$
$$x = (\sqrt[3]{8})^5 = 2^5 = 32$$

$$7(32)^{\frac{3}{5}} = 56$$
$$7(\sqrt[5]{32})^3 = 56$$
$$7 \cdot 2^3 = 56$$
$$7 \cdot 8 = 56$$
$$\checkmark$$

$$(x - 4)^{2/3} - 9 = 16$$

p. 456/ # 3 - 8, 13 - 20, 32, 33, 56 - 58

due Monday

p. 456/ # 23 - 28, 34 - 38, (45 - 51 odd), 60, 61

Due Tuesday