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Find the solutions to the equation:
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Squaring both sides

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Squaring both sides

$$(-x - 1)^2 = (\sqrt{9x - 9})^2$$

Radical Equations Example 7

Find the solutions to the equation:
$$-x - 1 = \sqrt{9x - 9}$$

Squaring both sides ▸ See polynomial squared out

$$x^2 + 2x + 1 = (-x - 1)^2 = (\sqrt{9x - 9})^2$$

Radical Equations Example 7

Find the solutions to the equation:
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Squaring both sides ▸ See polynomial squared out

$$x^2 + 2x + 1 = (-x - 1)^2 = (\sqrt{9x - 9})^2 = 9x - 9$$

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Check $x = 2$

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$$\text{LHS} = -2 - 1$$

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$$\text{LHS} = -2 - 1$$
$$= \text{-3}$$

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$$\text{RHS} = \sqrt{9 \cdot 2 - 9}$$

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    LHS $= -2 - 1$ LHS $= -5 - 1$

       $= $ -3

    RHS $= \sqrt{9 \cdot 2 - 9}$

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Check $x = 2$ Check $x = 5$

$\quad$ LHS $= -2 - 1$ $\qquad\qquad\qquad$ LHS $= -5 - 1$

$\qquad\quad = $ -3 $\qquad\qquad\qquad\qquad\quad = $ -6

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$\quad$ RHS $= \sqrt{9 \cdot 2 - 9}$ $\qquad\qquad\quad$ RHS $= \sqrt{9 \cdot 5 - 9}$

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Check $x = 2$

$$\text{LHS} = -2 - 1$$
$$= \text{-3}$$
$$\text{RHS} = \sqrt{9 \cdot 2 - 9}$$
$$= 3$$

Check $x = 5$

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$$= \text{-6}$$
$$\text{RHS} = \sqrt{9 \cdot 5 - 9}$$
$$= 6$$

$x = 2$ is not a solution

Radical Equations Example 7

Find the solutions to the equation:
$$-x - 1 = \sqrt{9x - 9}$$

Squaring both sides (▸ See polynomial squared out)
$$x^2 + 2x + 1 = (-x - 1)^2 = (\sqrt{9x - 9})^2 = 9x - 9$$
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$\qquad = $ -3

$\quad$ RHS $= \sqrt{9 \cdot 2 - 9}$

$\qquad = 3$

$x = 2$ is not a solution

Check $x = 5$

$\quad$ LHS $= -5 - 1$

$\qquad = $ -6

$\quad$ RHS $= \sqrt{9 \cdot 5 - 9}$

$\qquad = 6$

$x = 5$ is not a solution