

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## Solving Radical Equations Exit Quiz

Solve the following radical equation.

1.  $\sqrt{x^2 + 21} - x + 7 = 0$

Checking solution:

2.  $\sqrt{5x + 5} - \sqrt{x + 12} = 0$

Checking solution:

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

Checking solution:

## Solving Radical Equations Exit Quiz

**MULTIPLE CHOICES Show work!**

4. Solve this equation  $\sqrt{x+2} + 6 = 2$

a.) no solution

b.)  $x = 2$

c.)  $x = -2$

5. Solve this equation  $\sqrt{x-2} = 2$

a.) no solution

b.)  $x = 0$

c.)  $x = 2$

# Solving Radical Equations Exit Quiz

## ANSWERS

Solve the following radical equation.

$$\begin{aligned}
 1. \quad & \sqrt{x^2 + 21} - x + 7 = 0 \\
 & \sqrt{x^2 + 21} = x - 7 \\
 & (\sqrt{x^2 + 21})^2 = (x - 7)^2 \\
 & x^2 + 21 = x^2 - 14x + 49 \\
 & 14x = 28 \\
 & x = 2
 \end{aligned}$$

Checking solution:

$$\begin{aligned}
 x &= 2 \\
 \sqrt{2^2 + 21} - 2 + 7 &= 0 \\
 \sqrt{25} &= 5 \\
 5 &= 5
 \end{aligned}$$

$x = 2$  is a solution of this equation  
 $\{2\}$

$$\begin{aligned}
 2. \quad & \sqrt{5x + 5} - \sqrt{x + 12} = 0 \\
 & \sqrt{5x + 5} = \sqrt{x + 12} \\
 & (\sqrt{5x + 5})^2 = (\sqrt{x + 12})^2 \\
 & 5x + 5 = x + 12 \\
 & 4x = 7 \\
 & x = \frac{7}{4}
 \end{aligned}$$

Checking solution:

$$\begin{aligned}
 x &= \frac{7}{4} \\
 \sqrt{5 * \frac{7}{4} + 5} - \sqrt{\frac{7}{4} + 12} &= 0 \\
 \sqrt{\frac{35 + 20}{4}} - \sqrt{\frac{7 + 48}{4}} &= 0 \\
 \sqrt{\frac{55}{4}} - \sqrt{\frac{55}{4}} &= 0
 \end{aligned}$$

$x = \frac{7}{4}$  is a solution of this equation  
 $\{\frac{7}{4}\}$

$$\begin{aligned}
 3. \quad & \sqrt{x^2 - 3x + 5} = -3 \\
 & (\sqrt{x^2 - 3x + 5})^2 = (-3)^2 \\
 & x^2 - 3x + 5 = 9 \\
 & x^2 - 3x - 4 = 0 \\
 & (x - 4)(x + 1) = 0
 \end{aligned}$$

$$x_1 = 4$$

$$x_2 = -1$$

Checking solution:

$$\begin{aligned}
 x_1 &= 4 \\
 \sqrt{4^2 - 3 * 4 + 5} &= -3 \\
 \sqrt{16 - 12 + 5} &= -3 \\
 \sqrt{9} &= -3 \\
 3 &\neq -3
 \end{aligned}$$

$x_1 = 4$  is an extraneous solution of this equation

$$\begin{aligned}
 x_2 &= -1 \\
 \sqrt{(-1)^2 - 3 * (-1) + 5} &= -3 \\
 \sqrt{1 + 3 + 5} &= -3 \\
 \sqrt{9} &= -3 \\
 3 &\neq -3
 \end{aligned}$$

$x_2 = -1$  is an extraneous solution of this equation  
 $\emptyset$

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5. Solve this equation  $\sqrt{x-2} = 2$

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