

NAME: _____ Score _____/10

Please **print** your name

1. (2 pts.) If both sides of an equation are multiplied by an expression containing a variable, the solution set of the resulting equation **contains** the solution set of the original equation.
2. (2 pts.) If both sides of an equation are squared, the solution set of the resulting equation **contains** the solution set of the original equation.
3. (6 pts.) Solve the equation $\sqrt{2x+9} = x+3$.

$$\sqrt{2x+9} = x+3$$

$$2x+9 = x^2 + 6x+9 \quad \text{Equation (**)}$$

$$x^2 + 4x = 0$$

$$x(x+4) = 0$$

By the Zero Factor Property

$$x = 0 \text{ or } x+4 = 0$$

$$x = 0 \text{ or } x = -4 \quad \text{Observe that both of these are solutions to the equation (**)}$$

$$\text{Test } 0: \text{ LHS is } \sqrt{2(0)+9} = 3 \quad \text{RHS is } 0+3 = 3$$

Therefore 0 is a solution of the original equation.

$$\text{Test } -4: \text{ LHS is } \sqrt{2(-4)+9} = 1 \quad \text{RHS is } -4+3 = -1$$

Therefore -4 is NOT a solution of the original equation.

The solution set for the equation $\sqrt{2x+9} = x+3$ is $\{0\}$