## Solving Radical Inequalities - Example 1

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- Solving this equality, we get: $x=8$


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OR 2. $\sqrt{3 x+1}<5$ for every value on the region (all solutions)

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Example: Find the solution(s) to:

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We find that $x=8$ is the solutions to $\sqrt{3 x+1}=5$
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$\sqrt{3 x+1}$ is not defined for $x<\frac{-1}{3}$


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For $x=0 ; L H S=\sqrt{3 \cdot 0+1}$

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From the region $x>8$, we can pick the number $x=10$

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For $x=10 ; L H S=\sqrt{3 \cdot 10+1}$

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From the region $x>8$, we can pick the number $x=10$
For $x=10 ; L H S=\sqrt{3 \cdot 10+1}=\sqrt{31}$

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From the region $x>8$, we can pick the number $x=10$
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We find that $x=8$ is the solutions to $\sqrt{3 x+1}=5$
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$x=10$ is not a solution. So, there's no solution for $x>8$

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$x=10$ is not a solution. So, there's no solution for $x>8$
Conclusion: The solutions to $\sqrt{3 x+1} \leq 5$ are: $\left[\frac{-1}{3}, 8\right]$

