Objective 4 - Solving Radical Equations (Quadratic)

Solve radical equations that lead to quadratic equations.

Link to section in online textbook.

First, watch this video to see how solving radical equations is different from solving linear and quadratic equations. **The major difference is in the restricted domains of radical functions!** This objective will focus on radical equations that lead to quadratic equations. That means we can have 0, 1, or 2 solutions *(based on whether the potential solutions are in the domains of the radical functions).*

Question 1 *Solve the following equation.*

$$\sqrt{12\,x^2+30}-\sqrt{-38\,x}=0$$

Smallest solution: $x=$ $\boxed{-1.667}$

Largest solution: $x=$ $\boxed{-1.5}$

If there is only one Real solution, type "NA" as the largest solution. If there are no Real solutions, type "NA" for both.

Question 2 *Solve the following equation.*

$$\sqrt{-12\,x^2+24}-\sqrt{2\,x}=0$$

Smallest solution: $x=$ $\boxed{1.333}$

Largest solution: $x=$ $\boxed{NA}$

If there is only one Real solution, type "NA" as the largest solution. If there are no Real solutions, type "NA" for both.

Question 3 *Solve the following equation.*

Learning outcomes:
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$$\sqrt{-15\,x^2 - 20} - \sqrt{37\,x} = 0$$

Smallest solution: $x = \boxed{NA}$

Largest solution: $x = \boxed{NA}$

If there is only one Real solution, type "NA" as the largest solution. If there are no Real solutions, type "NA" for both.