Objective - Solving Rational Equations

Solve rational equations that lead to linear and quadratic equations.

Link to section in online textbook.

First, watch this video to learn how solving rational functions. Since our domain can be restricted, we need to check these values!

Question 1 *Solve the rational equation below. Remember to check your solutions to make sure they are valid! If there is no solution, answer "NA".*

$$\frac{8}{4\,x+5}+1=\frac{48}{24\,x+30}$$

Solution: $x = \boxed{NA}$

Question 2 *Solve the rational equation below. Remember to check your solutions to make sure they are valid! If there is no solution, answer "NA".*

$$-\frac{5}{7\,x+2}-5=\frac{4}{28\,x+8}$$

Solution: $x = \boxed{-\frac{16}{35}}$

Question 3 *Solve the rational equation below. Remember to check your solutions to make sure they are valid! If there are more boxes than solutions, answer "NA".*

$$-\frac{2\,x^2}{6\,x^2+x-2}-\frac{2\,x}{3\,x+2}=\frac{2}{2\,x-1}$$

Solutions: $x = \boxed{NA}$ and $x = \boxed{NA}$

Question 4 *Solve the rational equation below. Remember to check your solutions to make sure they are valid! If there are more boxes than solutions, answer "NA".*

$$-\frac{2\,x^2}{20\,x^2+31\,x+12}-\frac{6\,x}{4\,x+3}=\frac{6}{5\,x+4}$$

Learning outcomes:
Author(s): Darryl Chamberlain Jr.

Solutions: $x = \boxed{-\frac{3}{4}}$ and $x = \boxed{NA}$

Question 5 *Solve the rational equation below. Remember to check your solutions to make sure they are valid! If there are more boxes than solutions, answer "NA".*

$$\frac{4x^2}{15x^2 + x - 6} + \frac{6x}{3x + 2} = \frac{3}{5x - 3}$$

Solutions: $x = \boxed{-\frac{1}{68}\sqrt{1545} + \frac{27}{68}}$ and $x = \boxed{\frac{1}{68}\sqrt{1545} + \frac{27}{68}}$

Question 6 ***Main takeaway:*** *Before looking, you should work through the previous problems. Have you finished working through the examples?* $\boxed{Yes}$

Feedback(*`correct`*): *To solve rational equations, we want to multiply to remove the denominators. When in doubt, multiply by the denominator of each one at a time. This may not always be the most efficient way (multiplying by the GCD would be) it will eventually get the equation into a more manageable form. Like with radical functions, we also need to check our solutions to make sure they are valid – that we are not dividing by 0.*