Solving Rational Equations

Solve the following equations using the LCD to clear fractions first. Note: You must check all answers.

1. $\dfrac{1}{3} + \dfrac{4}{5} = \dfrac{x}{9}$

2. $\dfrac{1}{3} - \dfrac{1}{x} = \dfrac{5}{6}$

3. $\dfrac{2}{3} - \dfrac{1}{5} = \dfrac{7}{3x}$

4. $\dfrac{2}{6} + \dfrac{1}{2x} = \dfrac{1}{3}$

5. $y + \dfrac{4}{y} = -5$

6. $\dfrac{y-1}{y-3} = \dfrac{2}{y-3}$

7. $\dfrac{3}{x+2} = \dfrac{5}{x+4}$

8. $\dfrac{x^2-1}{x+2} = \dfrac{3}{x+2}$

9. $\dfrac{x^2+4}{x-1} = \dfrac{5}{x-1}$

10. $\dfrac{4}{a-7} = \dfrac{-2a}{a+3}$

11. $\dfrac{6}{a+1} = \dfrac{a}{a-1}$

12. $\dfrac{50}{t-2} - \dfrac{16}{t} = \dfrac{30}{t}$

13. $\dfrac{60}{w-5} - \dfrac{18}{w} = \dfrac{40}{w}$

14. $\dfrac{3}{x} + \dfrac{x}{x+2} = \dfrac{4}{x^2+2x}$

15. $\dfrac{x}{x+1} + \dfrac{5}{x} = \dfrac{1}{x^2+x}$

16. $\dfrac{5}{x+2} - \dfrac{3}{x-2} = \dfrac{2x}{4-x^2}$

17. $\dfrac{y+3}{y+2} - \dfrac{y}{y^2-4} = \dfrac{y}{y-2}$

18. $\dfrac{2}{a+4} + \dfrac{2a-1}{a^2+2a-8} = \dfrac{1}{a-2}$

19. $\dfrac{3}{x^2-6x+9} + \dfrac{x-2}{3x-9} = \dfrac{x}{2x-6}$

20. $\dfrac{3}{x^2-x-12} + \dfrac{2}{x^2+x-6} = \dfrac{4}{x^2-6x+8}$

21. $\dfrac{2}{x+3} - \dfrac{3x+5}{x^2+4x+3} = \dfrac{5}{x+1}$

22. $\dfrac{6}{x^2-2x-3} - \dfrac{1}{x^2-1} = \dfrac{2}{x^2-4x+3}$

Answer Key

1. $\dfrac{51}{5}$

2. -2

3. 5

4. No Solution

5. $-4, -1$

6. No Solution

7. 1

8. 2

9. -1

10. $2, 3$

11. $2, 3$

12. -23

13. -145

14. -1

15. -4

16. 4

17. -3

18. 3

19. $-6, 5$

20. 26

21. No Solution

22. $\dfrac{5}{3}$