Name _____ Date _____ Period _____

Solving Rational Equations in One Variable

State the restrictions for each rational equation. Show work.

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

2. $\dfrac{2x+9}{x} = \dfrac{4x-7}{x-3}$

3. $\dfrac{8x-3}{2} = \dfrac{9x}{2}$

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

5. $\dfrac{x+1}{x^2+3x-40} = \dfrac{1}{x+5}$

6. $\dfrac{x+5}{2x^2-2x} = \dfrac{5}{x}$

State the restrictions. Solve the equation algebraically. Identify any extraneous solutions. <u>Show work!</u>

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

8. $\dfrac{3}{2x+3} = \dfrac{4}{x-3}$

9. $\dfrac{x}{x+6} = \dfrac{x}{x-1} + \dfrac{1}{(x+6)(x-1)}$

10. $x+5 = \dfrac{14}{x}$

11. $x + \dfrac{4x}{x-3} = \dfrac{12}{x-3}$

12. $x + \dfrac{10}{x} = 7$

13. $x + \dfrac{12}{x} = 7$

14. $2 - \dfrac{1}{x+1} = \dfrac{1}{x^2+x}$

15. $\dfrac{3x}{x+5} + \dfrac{1}{x-2} = \dfrac{7}{x^2+3x-10}$

16. $\dfrac{x-3}{x} - \dfrac{3}{x+1} + \dfrac{3}{x(x+1)} = 0$

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

18. $\dfrac{5}{x}-4=x$

19. $\dfrac{x^2-2x+1}{x+5}=0$

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

Simplfy.

21. $\dfrac{4}{x^2-25}-\dfrac{4}{x^2+10x+25}$

22. $\dfrac{5x^2+5x}{x-4}\div\dfrac{x^2-4x-5}{x^3-4x^2}$