3.4

Name _____ Date _____ Period _____

SM3 Solving Rational Equations in One Variable

State the restrictions for each rational equation. Show work.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

16. $\frac{x-3}{x}-\frac{3}{x+1}+\frac{3}{x^2+x}=0$

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

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

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

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

Simplfy.

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

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