Chapter 8 Review #1

Do your work on a separate sheet of paper.

1. Simplify: $\frac{12-8x}{8x^3-27}$

2. Simplify: $\frac{6x^2+7x-20}{9x^2-16}$

3. Multiply: $\frac{7y^2}{3}\cdot\frac{6x}{10y}$

4. Simplify: $\frac{n^2+8n+15}{n^3+27}$

5. Divide: $\frac{x^2+8x+15}{x^2-9}\div\frac{x+5}{x-5}$

6. Multiply & simplify: $\frac{x^2+4x}{x^2+6x+8}\cdot\frac{x^2-x-2}{3x^3+12x^2}$

7. Subtract & simplify: $\frac{3x+4}{x^2-16}-\frac{2}{x-4}$

8. Add & simplify: $\frac{2x}{x^2+5x+6}+\frac{5}{x+3}$

9. Simplify: $\dfrac{\frac{2}{2x}-\frac{1}{3x}}{\frac{4}{x}-\frac{3}{2x}}$

10. Simplify: $\dfrac{\frac{4}{x-3}+\frac{2}{3}}{\frac{5}{x-3}}$

Solve and check for extraneous solutions:

11. $\frac{x}{x-1}+\frac{x}{x-9}=1$

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

13. $\frac{4}{x-2}=\frac{-3}{x+5}+\frac{7}{x^2+3x-10}$

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

15. The cable company charges \$72 to install your cable system and then charges \$52 per month for your channel line-up. Write an equation to model the average cost per month of this service. In how many months will the average cost drop below \$56?

(All answers are on the back.)