Algebra 2
Unit 3 WS3

Name:_____
Date:_____
Period:_____

Directions: Please answer the following questions. **Show work!!**
Perform the indicated operation. Don't forget to list the restrictions.

1. $\frac{2x}{6x^3} + \frac{x}{6x^3}$

2. $\frac{x^2 - 15x + 54}{x^2 - 8x - 9} \bullet \frac{x^2 + 7x + 6}{x^2 - 36}$

3. $\frac{5}{y+3} + \frac{3y+4}{y^2 + 7y + 12}$

4. $\frac{x^2 - 5x - 14}{x^2 - 13x + 42} \div \frac{x^2 - 8x - 20}{x^2 - 11x + 30}$

5. $\frac{5x + 20}{x^2 - 16} - \frac{2}{x - 4}$

6. $\frac{14x^2y^4}{42x^6y}$

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

8. $\frac{x^2-9x}{x^2-7x-18}\bullet\frac{x^2-9x-22}{3x^3+6x^2}$

9. $\frac{2x-7}{x-2}+\frac{8x}{3x-6}$

10. $\frac{1}{x-4}-\frac{2-x}{x-4}$

11. $\dfrac{\dfrac{4}{x+2}}{\dfrac{x+2}{6}}$

Use the given factor and your algebra skills to find all the roots of the polynomial.
12. *$f(x) = x^3 - 3x^2 + 9x + 13$; $(x + 1)$*