**Assignment: Simplifying Rational Expressions**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_

1. $f\left(x\right)=\frac{x-4}{x^{2}-5x+4}$ 2. $f\left(x\right)=\frac{x+3}{x^{2}-9}$

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3. $f\left(x\right)=\frac{3x+6}{x^{2}+5x+6}$ 4. $f\left(x\right)=\frac{x-4}{x^{2}-16}$

**Simplify.**

5. $\frac{4x^{6}}{2x-6}$ 6. $\frac{x+4}{3x^{2}+11x-4}$ 7. $\frac{x+4}{x^{2}-x-20}$

8. $\frac{4x-8}{x^{2}-2x}$ 9. $\frac{8x-4}{2x^{2}+9x-5}$ 10. $\frac{x^{2}-36}{x^{2}-12x+36}$

11. $\frac{3x+18}{x^{2}+2x-24}$ 12. $\frac{4x+20}{x+5}$ 13. $\frac{12x^{8}}{2x^{4}}$

14. $\frac{10x^{3}y^{4}}{-15x^{2}y^{7}}$ 15. $\frac{x^{2}+3x+2}{x^{2}-3x-4}$ 16. $\frac{x^{2}-1}{2x^{2}-5x+3}$

17. $\frac{-4x^{2}y^{5}}{8xy^{6}}$ 18. $\frac{x^{2}+12x+36}{12x+72}$ 19. $\frac{x^{2}-6x}{x^{2}-7x+6}$

20. $\frac{x^{2}+2x+1}{(x+1)^{2}}$