Name KEY Class _____ Date _____

5.1 Practice Form G

Rational Expressions

Simplify each rational expression. State any restrictions on the variables.

1. $\frac{4x+6}{2x+3}$ = 2 $x \neq -\frac{3}{2}$

2. $\frac{2y}{y^2+6y}$

3. $\frac{20+40x}{20x}$ = $\frac{1+2x}{x}$ $x \neq 0$

4. $\frac{7x-28}{x^2-16}$

5. $\frac{3y^2-3}{y^2-1}$ = 3 $x \neq 1, -1$

6. $\frac{3x^2-12}{x^2-x-6}$

7. $\frac{x^2+3x-18}{x^2-36}$ = $\frac{x+3}{x+6}$ $x \neq 6, -6$

8. $\frac{x^2+13x+40}{x^2-2x-35}$

Multiply. State any restrictions on the variables.

9. $\frac{5a}{5a+5} \cdot \frac{10a+10}{a}$ = 10 $a \neq 0, -1$

10. $\frac{2x+4}{10x} \cdot \frac{15x^2}{x+2}$

11. $\frac{x^2-5x}{x^2+3x} \cdot \frac{x+3}{x-5}$ = 1 $x \neq 0, -3, 5$

12. $\frac{x^2-6x}{x^2-36} \cdot \frac{x+6}{x^2}$

13. $\frac{5y-20}{3y+15} \cdot \frac{7y+35}{10y+40}$ = $\frac{7(y-4)}{6(y+4)}$ $y \neq -5, -4$

14. $\frac{x-2}{(x+2)^2} \cdot \frac{x+2}{2x-4}$

15. $\frac{3x^3}{x^2-25} \cdot \frac{x^2+6x+5}{x^2}$ = $\frac{3x(x+1)}{x-5}$ $x \neq -5, 5, 0$

16. $\frac{y^2-2y}{y^2+7y-18} \cdot \frac{y^2-81}{y^2-11y+18}$

Divide. State any restrictions on the variables.

17. $\frac{7x^4}{24y^5} \div \frac{21x}{12y^4}$ = $\frac{x^3}{6y}$ $x \neq 0, y \neq 0$

18. $\frac{6x+6}{7} \div \frac{4x+4}{x-2}$

19. $\frac{5y}{2x^2} \div \frac{5y^2}{8x^2}$ = $\frac{4}{y}$ $x \neq 0, y \neq 0$

20. $\frac{3y+3}{6y+12} \div \frac{18}{5y+5}$

21. $\frac{y^2-49}{(y-7)^2} \div \frac{5y+35}{y^2-7y}$ = $\frac{y}{5}$ $y \neq 7, -7$

22. $\frac{x^2+10x+16}{x^2-6x-16} \div \frac{x+8}{x^2-64}$

23. $\frac{y^2-5y+4}{y^2-1} \div \frac{y^2-9}{y^2+5y+4}$

24. $\frac{x^2-4}{x^2+6x+9} \div \frac{x^2+4x+4}{x^2-9}$

$\frac{(y-4)(y+4)}{(y-3)(y+3)}$ $y \neq 3, -3, -1, 1$