

## CR Algebra II

Name: \_\_\_\_\_

## Operations with Rational Expressions Review

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

Simplify completely. SHOW ALL WORK!!!

$$1. \frac{r^2 - 6r + 5}{5r^2 + r - 6} = \frac{(r-5)(r-1)}{(5r+6)(r-1)}$$

$\frac{r^2 - 6r + 5}{5r^2 + r - 6}$   
 $\frac{(r-5)(r-1)}{(5r+6)(r-1)}$   
 $\frac{r-5}{5r+6}$

$\begin{array}{r} 30 \\ 6 \times 5 \\ \hline 1 \end{array}$

r	5r <sup>2</sup>	6r
-1	-5r	-6

$$2. \frac{k^2 + 6k + 9}{k + 3} = \frac{(k+3)(k+3)}{k+3} = k+3$$

Multiply. Simplify completely. SHOW ALL WORK!!!

$$3. \frac{p+6}{12p} \cdot \frac{3p^5}{p^2-36} = \frac{(p+6) \cdot 13p^5}{4 \cdot 12p \cdot (p+6)(p-6)} = \frac{13p^4}{4(p-6)}$$

$\frac{p+6}{4 \cdot 12p} \cdot \frac{13p^5}{(p+6)(p-6)} = \frac{13p^4}{4(p-6)}$

$$4. \frac{y+4}{y^2+8y+16} \cdot \frac{y-3}{5y-15} = \frac{(y+4)}{(y+4)(y+4)} \cdot \frac{(y-3)}{5(y-3)} = \frac{1}{5(y+4)}$$

$$5. \frac{4x-24}{x^2-36} \cdot \frac{2x^2-11x-6}{5x-30} = \frac{4(x-6)}{(x+6)(x-6)} \cdot \frac{(2x+1)(x-6)}{5(x-6)} = \frac{4(2x+1)}{5(x+6)}$$

$\frac{4(x-6)}{(x+6)(x-6)} \cdot \frac{(2x+1)(x-6)}{5(x-6)}$

x	-6
2	2x <sup>2</sup> - 12x
+1	1x - 6

$\frac{-12}{-12} \times 1 = 1$



Divide. Simplify completely. SHOW ALL WORK!!!

$$6. \frac{16x^2}{(8y-x)} \div \frac{2x^5}{(8y-x)}$$

$$\frac{16x^2}{\cancel{(8y-x)}} \cdot \frac{\cancel{(8y-x)}}{2x^5} = \frac{16x^2}{2x^5}$$

$$6. \frac{8}{x^3}$$

$$7. \frac{p^2-9}{5p-15} \div \frac{p^2+7p+12}{4p+16}$$

$$\frac{(p^2-9)}{(5p-15)} \cdot \frac{(4p+16)}{(p^2+7p+12)} = \frac{(p+3)\cancel{(p-3)}}{5\cancel{(p-3)}} \cdot \frac{4(p+4)}{\cancel{(p+3)}(p+4)}$$

$$7. \frac{4}{5}$$

$$8. \frac{4m+16}{5m+15} \div \frac{m-4}{m^2-m-12}$$

$$\frac{(4m+16)}{(5m+15)} \cdot \frac{(m^2-m-12)}{(m-4)}$$

$$\frac{4(m+4)}{5\cancel{(m+3)}} \cdot \frac{\cancel{(m-4)}(m+3)}{\cancel{(m-4)}}$$

$$8. \frac{4(m+4)}{5}$$

Add or subtract. Simplify completely. SHOW ALL WORK!!!

$$9. \frac{16n}{7} + \frac{18n}{7} - \frac{6n}{7}$$

$$\frac{428n}{7}$$

$$9. 4n$$



Add the opposite numerator

$$10. \frac{7x+2}{8x+5} \ominus \frac{4x+11}{8x+5}$$

$$\frac{7x+2}{8x+5} + \frac{-4x-11}{8x+5} = \frac{3x-9}{8x+5}$$

$$11. \frac{4m+13}{m+2} + \frac{m-3}{m+2}$$

$$\frac{5m+10}{m+2} = \frac{5(m+2)}{m+2}$$

$$12. \frac{x(x-8)}{(x-7)(x-8)} + \frac{4(x-7)}{(x-8)(x-7)}$$

$$\frac{x^2-8x}{(x-7)(x-8)} + \frac{4x-28}{(x-7)(x-8)} = \frac{x^2-4x-28}{LCD}$$

$$13. \frac{5 \cdot 2}{5(n+7)} + \frac{3r}{5(n+7)}$$

$$\frac{10}{5(n+7)} + \frac{3r}{5(n+7)}$$

$$14. \frac{x+18}{x^2-5x+6} + \frac{5}{x-2}$$

$$\frac{x+18}{(x-3)(x-2)} + \frac{5(x-3)}{(x-2)(x-3)}$$

$$\frac{x+18}{(x-3)(x-2)} + \frac{5x-15}{(x-3)(x-2)} = \frac{6x+3}{(x-3)(x-2)} = \frac{3(2x+1)}{(x-3)(x-2)}$$

Review

$$10. \frac{3x-9}{8x+5} \text{ or } \frac{3(x-3)}{8x+5}$$

$$11. \underline{5}$$

$$12. \frac{x^2-4x-28}{(x-7)(x-8)}$$

$$13. \frac{10+3r}{5(n+7)}$$

$$14. \frac{6x+3}{(x-3)(x-2)} \text{ or } \frac{3(2x+1)}{(x-3)(x-2)}$$