

CR Algebra II
Operations with Rational Expressions Review

Name: Key
Date: _____ Period: _____

Simplify completely. SHOW ALL WORK!!!

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

$$1. \frac{r-5}{5r+6}$$

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

$$2. k+3$$

Multiply. Simplify completely. SHOW ALL WORK!!!

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

$$\frac{p^4}{4(p-6)}$$

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

$$4. \frac{1}{5(y+4)}$$

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

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

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

Divide. Simplify completely. SHOW ALL WORK!!!

$$6. \frac{16x^2}{8y-x} \div \frac{2x^5}{8y-x} = \frac{\overset{8}{\cancel{16}x^2}}{\cancel{8y-x}} \cdot \frac{\cancel{8y-x}}{\underset{1}{x^5}} = \frac{8}{x^3}$$

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

$$8. \frac{4m+16}{5m+15} \div \frac{m-4}{m^2-m-12} = \frac{4(m+4)}{5(m+3)} \cdot \frac{(m+3)(m+4)}{m-4} = \frac{4(m+4)}{5}$$

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

$$9. \frac{16n}{7} + \frac{18n}{7} - \frac{6n}{7} = \frac{28n}{7} = 4n$$

$$10. \frac{7x+2}{8x+5} - \frac{4x+11}{8x+5} = \frac{3x-9}{8x+5} = \frac{3(x-3)}{8x+5}$$

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

$$11. \frac{4m+13}{m+2} + \frac{m-3}{m+2} = \frac{5m+10}{m+2} = \frac{5(m+2)}{m+2}$$

$$11. 5$$

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

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

$$13. \frac{2}{n+7} + \frac{3r}{5(n+7)} = \frac{10+3r}{5(n+7)}$$

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

$$14. \frac{x+18}{x^2-5x+6} + \frac{5}{x-2} = \frac{x+18+5x-15}{(x-2)(x-3)} = \frac{6x+3}{(x-2)(x-3)} = \frac{3(2x+1)}{(x-2)(x-3)}$$

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