

Name: _____ Algebra 1+ Rational Expressions Test Review

Find the excluded values of the following rational expressions.

1. $\frac{3}{x-2}$

2. $\frac{x-1}{20x}$

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

Simplify the rational expressions. (Remember to FACTOR the numerator and denominator first, if possible)

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

5. $\frac{8x}{8(4x-1)}$

6. $\frac{4x^2-6x}{10x-8x^2}$

Multiply the rational expressions. (Remember to FACTOR what you can first)

7. $\frac{6}{3x} \cdot \frac{2x}{3}$

8. $\frac{x+2}{3x^3} \cdot \frac{15x}{7x+14}$

9. $\frac{x+6}{3x} \cdot \frac{5x^2}{2x+12}$

10. $\frac{4x+8}{3x-12} \cdot \frac{x-4}{3x+6}$

11. $\frac{3x}{9} \cdot \frac{x^2}{2x^4}$

12. $\frac{x+1}{5} \cdot \frac{x+2}{x^2+5x+4}$

Divide the rational expressions. (Remember to FACTOR what you can first.)

$$13. \frac{3x^2+6x}{3x} \div \frac{x+2}{5x^2}$$

$$14. \frac{2x-6}{4x^2} \div \frac{5x-15}{10x}$$

$$15. \frac{2x-2}{3x^2} \div \frac{x-1}{4}$$

$$16. \frac{4x-24}{3x+15} \div \frac{3x-18}{x+5}$$

$$17. \frac{2x-14}{x^2-4x-21} \div \frac{4}{x+3}$$

$$18. \frac{4x^2}{5} \div \frac{8x}{10}$$

Add the rational expressions. (Remember, what you change about each denominator you must change about the numerator.) SIMPLIFY at the end.

$$19. \frac{2}{5x-1} + \frac{10}{5x-1}$$

$$20. \frac{9}{6x^2} + \frac{2}{4x}$$

$$21. \frac{5}{6x} + \frac{3}{2x^2}$$

$$22. \frac{4}{x-3} + \frac{3}{x+5}$$

$$23. \frac{3}{x^2+8x+7} + \frac{2}{x^2-2x-3}$$

$$24. \frac{4x}{x-6} + \frac{x}{x-6}$$

Subtract the rational expressions. (Remember, what you change about each denominator you must change about the numerator, and you MUST distribute the negative to the second numerator.) SIMPLIFY at the end.

$$25. \frac{2}{x+3} - \frac{7}{x+3}$$

$$26. \frac{x+3}{7x} - \frac{3x}{x+4}$$

$$27. \frac{3}{2x} - \frac{6}{3}$$

$$28. \frac{5x}{3x^2} - \frac{4x}{3x}$$

$$29. \frac{4}{x^2+3x-10} - \frac{1}{x^2+2x-8}$$

$$30. \frac{13x}{2x+1} - \frac{10x}{2x+1}$$