Precalculus Algebra Review Worksheet #3 Rational Expressions page 1 _____

Express each of the following rational expressions in simplest form.

1. $\dfrac{x^2+3x+2}{x^2+2x} =$

2. $\dfrac{3x^2-15x}{3x^2-16x+5} =$

3. $\dfrac{x^3+8}{x^2+4x+4} =$

4. $\dfrac{5x^3-45x}{5x^2+12x-9} =$

5. $\dfrac{x^3-x}{x^3-1} =$

6. $\dfrac{12x^2+20x+3}{6x^2+5x-6} =$

7. $\dfrac{-6x^2+10x}{15x-25} =$

8. $\dfrac{6x^3+24x^2-30x}{2x^4-12x^3+10x^2} =$

9. $\dfrac{\frac{1}{2}+\frac{2}{x}}{1+\frac{1}{2x}} =$

10. $\dfrac{\frac{x}{5}-\frac{5}{x}}{\frac{x+5}{x}} =$

11. $\dfrac{1+\frac{3}{x}}{x+3} =$

12. $\dfrac{\frac{1}{x^2}-\frac{1}{4}}{\frac{1}{x}+\frac{1}{2}} =$

Perform the indicated operations. Express your answers in simplest form.

13. $\dfrac{x^2-1}{4x^2+4x} \cdot \dfrac{2x^3-6x^2}{x^2-4x+3} =$

14. $\dfrac{6x^2-30x}{6x^2+19x+15} \cdot \dfrac{2x^2+13x+15}{2x^2-10x} =$

15. $\dfrac{x^2+5x+6}{x^3+8} \cdot \dfrac{3x^2-6x+12}{4x+12} =$

16. $\dfrac{x^2-2x-8}{x^2+2x-15} \cdot \dfrac{x^2-5x+4}{x^2+6x+5} =$

17. $\dfrac{3x-x^2}{3x+15} \cdot \dfrac{x^2+10x+25}{2x^3+4x^2-30x} =$

18. $\dfrac{2x^2+9x-5}{4x^2-12x+5} \cdot \dfrac{8x^3-125}{x^2-25} =$

19. $\dfrac{6x-9}{10x^2} \div \dfrac{2x^2-3x}{25} =$

20. $\dfrac{x^2+3x+9}{x^2+5x+6} \div \dfrac{x^3-27}{x^3+8} =$

21. $\dfrac{6x^3+2x^2}{25x^2-4} \div \dfrac{5x^4-2x^3}{15x^2+11x+2} =$

22. $\dfrac{6x^2-7x-5}{4x^2+4x+1} \div \dfrac{3x^2-12x-15}{4x^2-1} =$