

Rational Expressions Concept Review

Perform the indicated operations. Don't forget to list restrictions.

$$1. \frac{2x}{6x^3} + \frac{x}{6x^3}$$

$$2. \frac{x^2-15x+54}{x^2-8x-9} \cdot \frac{x^2+7x+6}{x^2-36}$$

$$3. \frac{9x^2-16}{6x+8} \div \frac{15x-20}{30x-45}$$

$$4. \frac{x^2+4x-140}{x^2-13x+30}$$

$$5. \frac{5}{y+3} + \frac{3y+4}{y^2+7y+12}$$

$$6. \frac{16x^2-40x}{4x^3} \cdot \frac{3x-3}{x^2-5x+4}$$

$$7. \frac{16x-32}{12x+18} \cdot \frac{4x^2-9}{6x^2+x-15}$$

$$8. \frac{12x-36}{x^2+9x-36}$$

$$9. \frac{5x+20}{x^2-16} - \frac{2}{x-4}$$

$$10. \frac{3x+5}{x^2+8x-20} + \frac{x-13}{x^2+8x-20}$$

$$11. \frac{14x^2y^4}{42x^6y}$$

$$12. \frac{x^2-1}{x^2-64} \div \frac{x^2+3x-4}{2x^2-8x-64}$$

$$13. \frac{3}{4x+8} + \frac{3}{x^2-4}$$

$$14. \frac{9}{3x} - \frac{1}{4}$$

$$15. \frac{x^2-9x}{x^2-7x-18} \cdot \frac{x^2-9x-22}{3x^3+6x^2}$$

$$16. \frac{17x+31}{4x+5} - \frac{6-3x}{4x+5}$$

$$17. \frac{x^2-5x-14}{x^2-13x+42} \div \frac{x^2-8x-20}{x^2-11x+30}$$

$$18. \frac{1}{y+3} + \frac{2}{y^2+4y+3}$$

$$19. \frac{8x^2+10x-3}{4x^2-9}$$

$$20. \frac{6+5x}{x^2-x-12} - \frac{2+6x}{x^2-x-12}$$

$$21. \frac{5}{x+10} - \frac{4x}{x^2+12x+20}$$

$$22. \frac{6x+30}{x^2-4x-45} \cdot \frac{x^2-81}{2x-22}$$

$$23. \frac{x}{4x+4} + \frac{1}{4x+4}$$

$$24. \frac{6}{6x+8} + \frac{9x}{12x+16}$$

$$25. \frac{5x^2-15x}{10x^2} \div \frac{x^2-11x+24}{7x-56}$$

$$26. \frac{7+3x}{x^2-100} - \frac{2x-3}{x^2-100}$$

$$27. \frac{5}{4x} + \frac{7}{12x}$$

$$28. \frac{x^2-49}{x^2+19x+84}$$

$$29. \frac{3x}{x-6} + \frac{6x}{4x-24}$$

$$30. \frac{4}{x^2+4x+3} - \frac{2}{x^2+3x+2}$$