

**Solve: Check for extraneous solutions.**

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

2. 
$$\frac{9}{3x} = \frac{4}{x+2}$$

3. 
$$\frac{6}{x-1} = \frac{9}{x+1}$$

4. 
$$\frac{8}{3x-2} = \frac{2}{x-1}$$

5. 
$$\frac{x}{x+1} = \frac{3}{x+1}$$

6. 
$$\frac{x-3}{x+5} = \frac{x}{x+2}$$

7. 
$$\frac{x}{x^2-1} = \frac{-1}{x+1}$$

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

$$9. \quad \frac{2}{3x} + \frac{1}{6} = \frac{4}{3x}$$

$$10. \quad \frac{1}{2x} + \frac{3}{x+7} = \frac{-1}{x}$$

$$11. \quad \frac{5}{x^2+x-6} = 2 + \frac{x-3}{x-2}$$

$$12. \quad \frac{2}{x-3} + \frac{1}{x} = \frac{x-1}{x-3}$$

$$13. \quad \frac{10}{x} + 3 = \frac{x+9}{x-4}$$

$$14. \quad \frac{x+3}{x-3} + \frac{x}{x-5} = \frac{x+5}{x-5}$$

$$15. \frac{x-4}{x-2} - \frac{2x-1}{x-2} = 2$$

$$16. \frac{3x+6}{x^2-4} = \frac{x+1}{x-2}$$

Perform the indicated operation and simplify.

$$17. \frac{x^2+12x+36}{x^2-8x+12} \div (x^2 - 36)$$

$$18. \frac{4x+3}{x^2-16} + \frac{2}{x-4}$$

$$19. \frac{4}{x+5} - \frac{6x-1}{x^2+10x+25}$$

$$20. \frac{2x}{x^2+4x+4} + \frac{x-1}{x(x+2)}$$

Find the least common denominator.

$$21. \frac{x}{x-3}, \frac{3}{x^2-9}, \frac{x+1}{2x}$$

$$22. \frac{1}{x+4}, \frac{3x}{2(x-3)}, \frac{2x-5}{x^2+x-12}$$

$$23. \frac{1}{3x-3}, \frac{2}{x^2+x-6}, \frac{3}{x^2-3x+2}$$

$$24. \frac{x}{3x(x-1)}, \frac{2x}{x^2-2x+1}, \frac{3x}{12x+12}$$