

Simplify the following rational expressions.

1. $\frac{x-y}{y-x}$

2. $\frac{4x+8}{x+2}$

3. $\frac{x+5}{x^2-25}$

4. $\frac{x^2-2x-15}{x^2+10x+21}$

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

6. $\frac{6x^2-5x-1}{10x^2+9x-19}$

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

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

$$9. \frac{x^2-x-2}{x^2+8x+15} \cdot \frac{x^2-x-12}{x^2-9x+14}$$

$$10. \frac{4x^2-9}{x^2-10x+25} \div \frac{2x-3}{x-5}$$

$$11. \frac{x^2-3x-10}{x^2-3x-28} \div \frac{x^2-x-6}{x^2+x-12}$$

$$12. \frac{x}{x+3} + \frac{4}{x-5}$$

$$13. \frac{x-4}{x+1} - \frac{x-2}{x-1}$$

Solve:

14. $\frac{5}{7} + \frac{9}{t+3} = 2$

15. $\frac{3}{x-1} + \frac{12}{5} = 3$

16. $\frac{7}{9} - \frac{x+8}{x+1} = -1$