

In exercises 1 to 8, decide whether each of the following is an expression or an equation. If it is an equation, solve it. If it is an expression, write it as a single fraction.

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

$$X = 36$$

2. $\frac{x}{4} - \frac{x}{7} = 3$

$$X = 28$$

3. $\frac{x}{2} - \frac{x}{5}$

$$\frac{3x}{10}$$

4. $\frac{x}{6} - \frac{x}{8}$

$$\frac{x}{23}$$

5. $\frac{3x+1}{4} = x-1$

$$X = 5$$

6. $\frac{3x-1}{2} - \frac{x}{5} - \frac{x+3}{4}$

$$\frac{21x-25}{20}$$

7. $\frac{x}{4} = \frac{x}{12} + \frac{1}{2}$

$$X = 3$$

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

$$\frac{7x-2}{6}$$

In exercises 9 to 50, solve each equation.

9. $\frac{x}{3} + \frac{3}{2} = \frac{x}{6} + \frac{7}{3}$

$$X = 5$$

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

$$X = -7$$

11. $\frac{4}{x} + \frac{3}{4} = \frac{10}{x}$

$$X = 8$$

12. $\frac{3}{x} = \frac{5}{3} - \frac{7}{x}$

$$X = 6$$

13. $\frac{5}{4x} - \frac{1}{2} = \frac{1}{2x}$

$$X = \frac{3}{2}$$

14. $\frac{7}{6x} - \frac{1}{3} = \frac{1}{2x}$

$$X = 2$$

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

$$X = -1$$

16. $\frac{5}{x-2} = \frac{4}{x-1}$

$$X = -3$$

$$17. \frac{9}{x} + 2 = \frac{2x}{x+3} \quad X = -\frac{9}{5}$$

$$18. \frac{6}{x} + 3 = \frac{3x}{x+1} \quad X = -\frac{2}{3}$$

$$19. \frac{3}{x+2} - \frac{5}{x} = \frac{13}{x+2} \quad X = -\frac{2}{3}$$

$$20. \frac{7}{x} - \frac{2}{x-3} = \frac{6}{x} \quad X = -3$$

$$21. \frac{3}{2} + \frac{2}{2x-4} = \frac{1}{x-2} \quad \emptyset$$

$$22. \frac{2}{x-1} + \frac{5}{2x-2} = \frac{3}{4} \quad X = 7$$

$$23. \frac{x}{3x+12} + \frac{x-1}{x+4} = \frac{5}{3} \quad X = -23$$

$$24. \frac{x}{4x-12} - \frac{x-4}{x-3} = \frac{1}{8} \quad X = 5$$

$$25. \frac{x-1}{x+3} - \frac{x-3}{x} = \frac{3}{x^2+3x} \quad X = 6$$

$$26. \frac{x+1}{x-2} - \frac{x+3}{x} = \frac{6}{x^2-2x} \quad \mathbb{R} \text{ where } X \neq 0, 2$$

$$27. \frac{1}{x-2} - \frac{2}{x+2} = \frac{2}{x^2-4} \quad X = 4$$

$$28. \frac{1}{x+4} + \frac{1}{x-4} = \frac{12}{x^2-16} \quad X = 6$$

$$29. \frac{7}{x+5} - \frac{1}{x-5} = \frac{x}{x^2-25} \quad X = 8$$

$$30. \frac{2}{x-2} = \frac{3}{x+2} + \frac{x}{x^2-4} \quad X = 5$$

$$31. \frac{11}{x+2} - \frac{5}{x^2-x-6} = \frac{1}{x-3} \quad X = 4$$

$$32. \frac{5}{x-4} = \frac{1}{x+2} - \frac{2}{x^2-2x-8} \quad X = -4$$

$$33. \frac{5}{x-2} - \frac{3}{x+3} = \frac{24}{x^2+x-6} \quad X = \frac{3}{2}$$

$$34. \frac{3}{x+1} - \frac{5}{x+6} = \frac{2}{x^2+7x+6} \quad X = \frac{11}{2}$$

$$35. \frac{x}{x-3} - 2 = \frac{3}{x-3} \quad \emptyset$$

$$36. \frac{x}{x-5} + 2 = \frac{5}{x-5} \quad X = 5$$

$$37. \frac{2}{x^2-3x} - \frac{1}{x^2+2x} = \frac{2}{x^2-x-6}$$

$$38. \frac{2}{x^2-x} - \frac{4}{x^2+5x-6} = \frac{3}{x^2+6x}$$