

Solving Rational Equations and Complex Fractions

 **Solve each equation. Remember to check for extraneous solutions.**

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

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

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

4) $\frac{1}{6b^2} + \frac{1}{6b} = \frac{1}{b^2}$

5) $\frac{3x-2}{9x+1} = \frac{2x-5}{6x-5}$

6) $\frac{1}{n^2} + \frac{1}{n} = \frac{1}{2n^2}$

7) $\frac{1}{8b^2} = \frac{1}{4b^2} - \frac{1}{b}$

8) $\frac{1}{n-8} - 1 = \frac{7}{n-8}$

9) $\frac{5}{r-2} = -\frac{10}{r+2} + 7$

10) $1 = \frac{1}{x^2+2x} + \frac{x-1}{x}$

11) $\frac{1}{x} = 8 + \frac{6}{9x}$

12) $\frac{x+5}{x^2-2x} - 1 = \frac{1}{x^2-2x}$

13) $\frac{x-2}{x+3} - 1 = \frac{1}{x+2}$

14) $\frac{1}{6x^2} = \frac{1}{3x^2} - \frac{1}{x}$

15) $\frac{x+5}{x^2-x} = \frac{1}{x^2+x} - \frac{x-6}{x+1}$

16) $1 = \frac{1}{x^2-2x} + \frac{x-1}{x}$

 **Simplify each expression.**

17) $\frac{-1\frac{11}{12}}{-3} =$

18) $\frac{\frac{4}{5}}{\frac{2}{25} - \frac{5}{16}} =$

19) $\frac{\frac{14}{3}}{-6\frac{2}{11}} =$

20) $\frac{9}{\frac{9}{x} + \frac{2}{3x}} =$

21) $\frac{x^2}{\frac{4}{5} - \frac{4}{x}} =$

22) $\frac{\frac{4}{x-3} - \frac{2}{x+2}}{\frac{8}{x^2+6x+8}} =$

23) $\frac{\frac{16}{x-1}}{\frac{16}{5} - \frac{16}{25}} =$

24) $\frac{2 + \frac{6}{x-4}}{2 - \frac{4}{x-4}} =$

25) $\frac{\frac{1}{x^2} - \frac{x+5}{4}}{\frac{x^2}{2} - \frac{5}{2}} =$

26) $\frac{\frac{x-6}{2} - \frac{x-2}{36}}{\frac{x-2}{36} + \frac{4}{9}} =$

Answers

Solving rational equations and complex fractions

1) $\{\frac{1}{2}\}$

2) $\{-\frac{1}{5}\}$

3) $\{0, 14\}$

4) $\{-\frac{15}{16}\}$

5) $\{\frac{1}{6}\}$

6) $\{-\frac{1}{2}\}$

7) $\{\frac{1}{8}\}$

8) $\{2\}$

17) $\frac{23}{36}$

18) $-\frac{320}{93}$

19) $-\frac{77}{102}$

20) $\frac{27x}{29}$

21) $\frac{5x^2}{4x - 20}$

26) $\frac{3x^3 - 60x^2 + 252x - 288 - x}{584x + 8x^2 - 3792}$

9) $\{-\frac{6}{7}, 3\}$

10) $\{-1\}$

11) $\{\frac{1}{24}\}$

12) $\{4, -1\}$

13) $\{-\frac{19}{8}\}$

14) $\{\frac{1}{6}\}$

15) $\{-\frac{1}{4}\}$

16) $\{4, 1\}$

22) $\frac{(x+7)(x+4)}{4(x-3)}$

23) $\frac{25}{4x - 4}$

24) $\frac{x - 1}{x - 6}$

25) $\frac{-3 - x}{2x^2 - 10}$