

Solving Rational Equations

Solve each equation. Remember to check for extraneous solutions.

1) $\frac{a+1}{5a} - \frac{1}{a} = 1$

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

3) $\frac{1}{n^2} + \frac{4}{n} = \frac{3}{n^2}$

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

5) $\frac{1}{k^2} = \frac{1}{3k^2} + \frac{k+5}{3k^2}$

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

7) $\frac{6}{k} - \frac{1}{k^2+6k} = \frac{1}{k}$

8) $\frac{4}{n+1} + \frac{1}{n^2-5n-6} = \frac{1}{n-6}$

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

10) $\frac{5}{p+6} - \frac{1}{p^2+6p} = \frac{2}{p^2+6p}$

11) $\frac{1}{2v} = \frac{5v+15}{v^2-6v} - \frac{v+6}{2v^2-12v}$

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

13) $\frac{n^2+7n+6}{n^2} = \frac{1}{6} - \frac{1}{6n^2}$

14) $\frac{k+1}{k} = 1 - \frac{k^2-3k-4}{4k}$

15) $1 = \frac{2}{r^2} - \frac{1}{r}$

16) $\frac{2n^2-8n-10}{5n} - 1 = \frac{n+6}{5n}$

17) $\frac{x^2-3x-4}{x^3-x^2} - \frac{1}{x^2} = \frac{x-2}{x^2}$

18) $1 = \frac{n-2}{n-1} + \frac{3}{n^2+3n-4}$

19) $\frac{v-6}{2v^2+2v-4} + \frac{v}{2v-2} = \frac{1}{2}$

20) $\frac{x-3}{2x+10} + 2x-12 = \frac{x^2+3x-18}{2x+10}$

Answers to Solving Rational Equations

1) $\{-1\}$

2) $\left\{\frac{5}{6}\right\}$

3) $\left\{\frac{1}{2}\right\}$

4) $\left\{-\frac{1}{5}\right\}$

5) $\{-3\}$

6) $\left\{-\frac{5}{4}\right\}$

7) $\left\{-\frac{29}{5}\right\}$

8) $\{8\}$

9) $\{5\}$

10) $\left\{\frac{3}{5}\right\}$

11) $\left\{-\frac{15}{4}\right\}$

12) $\left\{\frac{11}{2}\right\}$

13) $\left\{-1, -\frac{37}{5}\right\}$

14) $\{3\}$

15) $\{-2, 1\}$

16) $\{-1, 8\}$

17) $\{-5\}$

18) $\{-1\}$

19) $\{2\}$

20) $\{7\}$