

12-1 Rational Equations (& Extraneous Solutions)

Solve each equation. Remember to check for extraneous solutions.

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

2) $\frac{1}{5} = 1 + \frac{1}{5n}$

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

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

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

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

7) $\frac{1}{4} - (3b+3) = \frac{b+3}{4b}$

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

$$9) \frac{n-1}{n^2+n} - \frac{1}{n+1} = \frac{1}{n}$$

$$10) \frac{1}{3n} = \frac{4}{3n} - 2$$

$$11) \frac{1}{2x^2} + \frac{1}{2} = 1$$

$$12) \frac{b^2-b-6}{5b} - \frac{b-5}{5} = \frac{6}{b}$$

$$13) \frac{1}{n^2} + \frac{3n^2+12n-15}{n^2} = 1$$

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

$$15) \frac{5k-5}{2k} = \frac{1}{2k} + k - 4$$

$$16) \frac{1}{x^2-x} = \frac{x-5}{x} - 1$$

Answers to 12-1 Rational Equations (& Extraneous Solutions) (ID: 1)

1) $\{3\}$

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

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

4) $\left\{-\frac{35}{4}\right\}$

5) $\{1\}$

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

7) $\left\{-\frac{1}{2}\right\}$

8) $\left\{\frac{4}{3}\right\}$

9) $\{-2\}$

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

11) $\{1, -1\}$

12) $\{9\}$

13) $\{1, -7\}$

14) $\left\{\frac{1}{2}, -\frac{1}{2}\right\}$

15) $\left\{6, \frac{1}{2}\right\}$

16) $\left\{\frac{4}{5}\right\}$