

Solving Rational Equations 1

Solve each equation. Remember to check for extraneous solutions.

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

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

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

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

5)
$$\frac{3n+15}{4n^2} = \frac{1}{n^2} - \frac{n-3}{4n^2}$$

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

7)
$$\frac{x-6}{x} = \frac{x+4}{x} + 1$$

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

9)
$$\frac{6b+18}{b^2} + \frac{1}{b} = \frac{3}{b}$$

10)
$$\frac{1}{2x} - \frac{x-1}{2x^2} = \frac{3}{x}$$

$$11) \frac{1}{b^2 - 7b + 10} + \frac{1}{b - 2} = \frac{2}{b^2 - 7b + 10}$$

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

$$13) \frac{6}{p} = \frac{1}{p - 5} - \frac{p + 4}{p^2 - 5p}$$

$$14) \frac{5x - 20}{x^2 - 9x + 18} + \frac{1}{x - 6} = \frac{x - 4}{x^2 - 9x + 18}$$

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

$$16) \frac{6}{n^2 - 6n + 8} = \frac{1}{n^2 - 6n + 8} - \frac{1}{n - 4}$$

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

$$18) \frac{3}{k^2 + 5k + 6} - \frac{k - 6}{k^2 + 5k + 6} = \frac{1}{k + 3}$$

$$19) \frac{v - 3}{v^2 + 3v} = \frac{1}{v + 3} - \frac{v - 5}{v^2 + 3v}$$

$$20) 1 = \frac{3}{m + 3} + \frac{3m}{m + 3}$$

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Solve each equation. Remember to check for extraneous solutions.

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

 $\{11\}$

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

 $\{-3\}$

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

 $\{-2\}$

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

 $\{1\}$

5) $\frac{3n+15}{4n^2} = \frac{1}{n^2} - \frac{n-3}{4n^2}$

 $\{-2\}$

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

 $\left\{-\frac{5}{3}\right\}$

7) $\frac{x-6}{x} = \frac{x+4}{x} + 1$

 $\{-10\}$

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

 $\{-1\}$

9) $\frac{6b+18}{b^2} + \frac{1}{b} = \frac{3}{b}$

 $\left\{-\frac{9}{2}\right\}$

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

 $\left\{\frac{1}{6}\right\}$

$$11) \frac{1}{b^2 - 7b + 10} + \frac{1}{b - 2} = \frac{2}{b^2 - 7b + 10}$$

{6}

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

{2}

$$13) \frac{6}{p} = \frac{1}{p - 5} - \frac{p + 4}{p^2 - 5p}$$

{ $\frac{13}{3}$ }

$$14) \frac{5x - 20}{x^2 - 9x + 18} + \frac{1}{x - 6} = \frac{x - 4}{x^2 - 9x + 18}$$

{ $\frac{19}{5}$ }

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

{ $-\frac{5}{6}$ }

$$16) \frac{6}{n^2 - 6n + 8} = \frac{1}{n^2 - 6n + 8} - \frac{1}{n - 4}$$

{-3}

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

{ $-\frac{18}{5}$ }

$$18) \frac{3}{k^2 + 5k + 6} - \frac{k - 6}{k^2 + 5k + 6} = \frac{1}{k + 3}$$

{ $\frac{7}{2}$ }

$$19) \frac{v - 3}{v^2 + 3v} = \frac{1}{v + 3} - \frac{v - 5}{v^2 + 3v}$$

{8}

$$20) 1 = \frac{3}{m + 3} + \frac{3m}{m + 3}$$

{0}