

Solving Rational Equations 1

Solve each equation. Remember to check for extraneous solutions.

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

 $\{11\}$

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}

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

$\left\{ \frac{13}{3} \right\}$

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

$\left\{ \frac{19}{5} \right\}$

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

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

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

{-3}

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

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

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

$\left\{ \frac{7}{2} \right\}$

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

{8}

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

{0}

Solving Rational Equations 2

Solve each equation. Remember to check for extraneous solutions.

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

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

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

$$\{1\}$$

3)
$$\frac{n^2 - n - 6}{n^2} - \frac{2n + 12}{n} = \frac{n - 6}{2n}$$

$$\left\{-\frac{2}{3}, -6\right\}$$

4)
$$\frac{3x^2 + 24x + 48}{x^2} + \frac{x - 6}{2x^2} = \frac{1}{x^2}$$

$$\left\{-\frac{8}{3}, -\frac{11}{2}\right\}$$

5)
$$\frac{k^2 + 2k - 8}{3k^3} = \frac{1}{3k^2} + \frac{1}{k^2}$$

$$\{-2, 4\}$$

6)
$$\frac{k}{3} - \frac{1}{3k} = \frac{1}{k}$$

$$\{-2, 2\}$$

$$7) \frac{x-4}{6x} + \frac{x^2-3x-10}{6x} = \frac{x-1}{6}$$

$\{-14\}$

$$8) \frac{1}{x^2} = \frac{x-1}{x} + \frac{1}{x}$$

$\{1, -1\}$

$$9) \frac{1}{r+3} = \frac{r+4}{r-2} + \frac{6}{r-2}$$

$\{-8, -4\}$

$$10) \frac{2x+2}{3x-12} - \frac{4x^2-16}{3x^2-24x+48} = \frac{5x-5}{3x^2-24x+48}$$

$\left\{1, -\frac{13}{2}\right\}$

$$11) \frac{1}{n+3} + \frac{n^2+6n+5}{n+3} = n-3$$

$\left\{-\frac{5}{2}\right\}$

$$12) \frac{1}{2} = \frac{x^2-7x+10}{4x} - \frac{1}{2x}$$

$\{1, 8\}$

$$13) \frac{1}{k} = 5 + \frac{1}{k^2 + k}$$

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

$$14) \frac{1}{p^2 - 4p} + 1 = \frac{p-6}{p}$$

$$\left\{ \frac{23}{6} \right\}$$

$$15) \frac{5}{n} - \frac{6}{n^3 - 2n^2} = \frac{n^2 + 5n - 6}{n^3 - 2n^2}$$

$$\left\{ \frac{15}{4} \right\}$$

$$16) \frac{x+2}{x} = \frac{x-1}{x} - \frac{4x+2}{x^2 - 3x}$$

$$\{1\}$$

