

## Solving Rational Equations

Solve each equation. Remember to check for extraneous solutions.

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

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

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

$$4) \frac{b+6}{4b^2} + \frac{3}{2b^2} = \frac{b+4}{2b^2}$$

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

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

$$7) \frac{1}{v} + \frac{3v+12}{v^2-5v} = \frac{7v-56}{v^2-5v}$$

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

$$9) \frac{1}{n-8} - 1 = \frac{7}{n-8}$$

$$10) \frac{1}{r-2} + \frac{1}{r^2-7r+10} = \frac{6}{r-2}$$

## Answers

Solve each equation. Remember to check for extraneous solutions.

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

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

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

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

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

$$\{5\}$$

$$4) \frac{b+6}{4b^2} + \frac{3}{2b^2} = \frac{b+4}{2b^2}$$

$$\{4\}$$

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

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

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

$$\{-2\}$$

$$7) \frac{1}{v} + \frac{3v+12}{v^2-5v} = \frac{7v-56}{v^2-5v}$$

$$\{21\}$$

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

$$\{5\}$$

$$9) \frac{1}{n-8} - 1 = \frac{7}{n-8}$$

$$\{2\}$$

$$10) \frac{1}{r-2} + \frac{1}{r^2-7r+10} = \frac{6}{r-2}$$

$$\left\{ \frac{26}{5} \right\}$$

$$11) 1 = \frac{v+2}{v-4} + \frac{7v-42}{v-4}$$

$$12) \frac{r-4}{5r} = \frac{1}{5r} + 1$$

$$13) 1 + \frac{x^2 - 5x - 24}{3x} = \frac{x-6}{3x}$$

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

$$15) \frac{n+5}{n+8} = 1 + \frac{6}{n+1}$$

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

$$17) \frac{1}{x^2-5x} = \frac{x+7}{x} - 1$$

$$18) \frac{a-2}{a+3} - 1 = \frac{3}{a+2}$$

$$19) \frac{p+5}{p^2+p} = \frac{1}{p^2+p} - \frac{p-6}{p+1}$$

$$20) \frac{5}{n^3+5n^2} = \frac{4}{n+5} + \frac{1}{n^2}$$

## Answers

$$11) 1 = \frac{v+2}{v-4} + \frac{7v-42}{v-4}$$

$$\left\{ \frac{36}{7} \right\}$$

$$12) \frac{r-4}{5r} = \frac{1}{5r} + 1$$

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

$$13) 1 + \frac{x^2 - 5x - 24}{3x} = \frac{x-6}{3x}$$

$$\{-3, 6\}$$

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

$$\{-1\}$$

$$15) \frac{n+5}{n+8} = 1 + \frac{6}{n+1}$$

$$\left\{ -\frac{17}{3} \right\}$$

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

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

$$17) \frac{1}{x^2 - 5x} = \frac{x+7}{x} - 1$$

$$\left\{ \frac{36}{7} \right\}$$

$$18) \frac{a-2}{a+3} - 1 = \frac{3}{a+2}$$

$$\left\{ -\frac{19}{8} \right\}$$

$$19) \frac{p+5}{p^2+p} = \frac{1}{p^2+p} - \frac{p-6}{p+1}$$

$$\{4, 1\}$$

$$20) \frac{5}{n^3 + 5n^2} = \frac{4}{n+5} + \frac{1}{n^2}$$

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