Intermediate Algebra Skill

Solving Rational Equations

Solve each equation. Remember to check for extraneous solutions.

1) $1 = \frac{1}{3n} - \frac{n+6}{3n}$

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

3) $\frac{5}{x^2 - x - 12} - \frac{1}{x-4} = \frac{1}{x+3}$

4) $\frac{1}{a+5} = \frac{1}{a} + \frac{4a+16}{a^2+5a}$

5) $\frac{4r-16}{r^2-4r-5} - \frac{r-6}{r^2-4r-5} = \frac{1}{r-5}$

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

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

8) $\frac{4}{x-5} + \frac{x-2}{x-5} = \frac{x+2}{x^2-10x+25}$

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

10) $\frac{x^2+8x+15}{x^2+2x-8} - \frac{x+6}{x^2+2x-8} = \frac{x-1}{x-2}$

Answers to Solving Rational Equations

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

2) $\{-1\}$

3) $\{3\}$

4) $\left\{-\frac{21}{4}\right\}$

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

6) $\{-3\}$

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

8) $\{-2, 6\}$

9) $\{-4\}$

10) $\left\{-\frac{13}{4}\right\}$