Honors Algebra 2 Name_____ ID: 1

# 4.4 Solving Rational Equations

Solve each equation. Remember to check for extraneous solutions.

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

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

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

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

5) $\frac{1}{a+4} - \frac{1}{a+5} = \frac{a-2}{a^2+9a+20}$

6) $\frac{1}{r+2} = \frac{5r-10}{r^2+4r+4} + \frac{r-2}{r^2+4r+4}$

7) $\frac{4}{m^2+6m} = \frac{5}{m^2+6m} + \frac{1}{m+6}$

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

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

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

11) $\frac{2n^2+2n-12}{n^2+n-2} + \frac{1}{n^2+n-2} = \frac{1}{n+2}$

12) $\frac{3}{m^2-5m+6} = \frac{4m-8}{m-3} - \frac{1}{m^2-5m+6}$

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

14) $\frac{3b+18}{b^2-4b} + 1 = \frac{6b+6}{b^2-4b}$

15) $1 + \frac{m^2+m-2}{m} = \frac{m+4}{m}$

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

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# 4.4 Solving Rational Equations

Solve each equation. Remember to check for extraneous solutions.

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

$\{11\}$

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

$\{1\}$

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

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

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

$\{8\}$

5) $\frac{1}{a+4} - \frac{1}{a+5} = \frac{a-2}{a^2+9a+20}$

$\{3\}$

6) $\frac{1}{r+2} = \frac{5r-10}{r^2+4r+4} + \frac{r-2}{r^2+4r+4}$

$\left\{\frac{14}{5}\right\}$

7) $\frac{4}{m^2+6m} = \frac{5}{m^2+6m} + \frac{1}{m+6}$

$\{-1\}$

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

$\{-5\}$

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

$\{3, -4\}$

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

$\left\{\frac{1}{3}, -1\right\}$

11) $\frac{2n^2+2n-12}{n^2+n-2} + \frac{1}{n^2+n-2} = \frac{1}{n+2}$

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

12) $\frac{3}{m^2-5m+6} = \frac{4m-8}{m-3} - \frac{1}{m^2-5m+6}$

$\{1\}$

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

$\{1\}$

14) $\frac{3b+18}{b^2-4b} + 1 = \frac{6b+6}{b^2-4b}$

$\{3\}$

15) $1 + \frac{m^2+m-2}{m} = \frac{m+4}{m}$

$\{2, -3\}$

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

$\left\{-1, -\frac{5}{6}\right\}$