Math 2 Name_____

Math 2 Unit 5.7 Solve Equations with Rational Expressions Example

Solve each equation. Remember to check for extraneous solutions.

1) $\frac{n+1}{2n} = \frac{1}{n} + \frac{2n+10}{n}$

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

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

4) $\frac{5}{a} + \frac{1}{6} = \frac{4a-20}{3a}$

5) $\frac{1}{3} - \frac{3}{x} = 1$

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

7) $\frac{2}{5n} + \frac{4n+10}{5} = \frac{1}{5}$

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

9) $\frac{b^2+3b-4}{5b} - 4 = \frac{b+3}{5}$

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

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

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

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

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

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

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

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

18) $\frac{x - 2}{2x^3 + 12x^2} - \frac{1}{2x} = \frac{1}{x^3 + 6x^2}$

19) $\frac{5}{v^2 + 2v - 24} = \frac{1}{v^2 + 2v - 24} - \frac{v + 1}{v + 6}$

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

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Solve each equation. Remember to check for extraneous solutions.

1) $\frac{n+1}{2n} = \frac{1}{n} + \frac{2n+10}{n}$

$\{-7\}$

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

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

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

$\{-1\}$

4) $\frac{5}{a} + \frac{1}{6} = \frac{4a-20}{3a}$

$\{10\}$

5) $\frac{1}{3} - \frac{3}{x} = 1$

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

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

$\{3, -2\}$

7) $\frac{2}{5n} + \frac{4n+10}{5} = \frac{1}{5}$

$\left\{-2, -\frac{1}{4}\right\}$

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

$\left\{-\frac{3}{4}\right\}$

9) $\frac{b^2+3b-4}{5b} - 4 = \frac{b+3}{5}$

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

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

$\left\{-\frac{10}{3}\right\}$

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

$\{4\}$

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

$\{-12\}$

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

$\{-5\}$

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

$\{0\}$

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

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

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

$\{-2\}$

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

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

18) $\frac{x-2}{2x^3+12x^2}-\frac{1}{2x}=\frac{1}{x^3+6x^2}$

$\{-4, -1\}$

19) $\frac{5}{v^2+2v-24}=\frac{1}{v^2+2v-24}-\frac{v+1}{v+6}$

$\{0, 3\}$

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

$\left\{-\frac{1}{2}, -\frac{2}{3}\right\}$