

## Practice - Rational Equations

Solve the following equations for the given variable:

1)  $3x - \frac{1}{2} - \frac{1}{x} = 0$

3)  $x + \frac{20}{x-4} = \frac{5x}{x-4} - 2$

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

7)  $\frac{2x}{3x-4} = \frac{4x+5}{6x-1} - \frac{3}{3x-4}$

9)  $\frac{3m}{2m-5} - \frac{7}{3m+1} = \frac{3}{2}$

11)  $\frac{4-x}{1-x} = \frac{12}{3-x}$

13)  $\frac{7}{y-3} - \frac{1}{2} = \frac{y-2}{y-4}$

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

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

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

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

23)  $\frac{3}{x+2} + \frac{x-1}{x+5} = \frac{5x+20}{6x+24}$

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

27)  $\frac{2x}{x+1} - \frac{3}{x+5} = \frac{-8x^2}{x^2+6x+5}$

29)  $\frac{x-5}{x-9} + \frac{x+3}{x-3} = \frac{-4x^2}{x^2+12x+27}$

31)  $\frac{x+1}{x-4} + \frac{3x-2}{x+4} = \frac{7x^2}{x^2-16}$

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

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

39)

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

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

6)  $\frac{4-x}{x-1} = \frac{12}{3-x} + 1$

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

10)  $\frac{4x}{2x-6} - \frac{4}{5x-15} = \frac{1}{2}$

12)  $\frac{7}{3-x} + \frac{1}{2} = \frac{3}{4-x}$

14)  $\frac{2}{3-x} - \frac{6}{8-x} = 1$

16)  $\frac{x+2}{3x-1} - \frac{1}{x} = \frac{3x+8}{3x^2-x}$

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

20)  $\frac{3x-5}{5x-5} + \frac{5x-1}{7x-7} - \frac{x-4}{1-x} = 2$

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

24)  $\frac{x}{x+3} - \frac{4}{x-2} = \frac{-5x^2}{x^2+x-6}$

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

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

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

32)  $\frac{x-3}{x-6} + \frac{x+5}{x+3} = \frac{-2x^2}{x^2-3x-18}$

34)  $\frac{4x+1}{x+3} + \frac{5x-3}{x-1} = \frac{8x^2}{x^2+2x-3}$



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## Answers - Rational Equations

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|--------------------------------|-----------------------|--------------------|
| 1) $-\frac{1}{2}, \frac{2}{3}$ | 13) $\frac{16}{3}, 5$ | 25) $\frac{2}{3}$  |
| 2) $-3, 1$                     | 14) $2, 13$           | 26) $\frac{1}{2}$  |
| 3) $3$                         | 15) $-8$              | 27) $\frac{3}{10}$ |
| 4) $-1, 4$                     | 16) $2$               | 28) $1$            |
| 5) $2$                         | 17) $-\frac{1}{5}, 5$ | 29) $-\frac{2}{3}$ |
| 6) $\frac{1}{3}$               | 18) $-\frac{9}{5}, 1$ | 30) $-1$           |
| 7) $-1$                        | 19) $\frac{3}{2}$     | 31) $1$            |
| 8) $-\frac{1}{3}$              | 20) $10$              | 32) $\frac{13}{4}$ |
| 9) $-5$                        | 21) $0, 5$            | 33) $-10$          |
| 10) $-\frac{7}{15}$            | 22) $-2, \frac{5}{3}$ | 34) $\frac{7}{4}$  |
| 11) $-5, 0$                    | 23) $4, 7$            |                    |
| 12) $5, 10$                    | 24) $-1$              |                    |



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