Solving Equations in One Variable

Equations involving rational expressions or fractions are rational equations. Every rational equation can be written in the form $\frac{f(x)}{g(x)} = 0$

Steps to solving the rational equation.

- Find the LCD. (Least common denominator)
- Multiply all terms by the LCD to clear away the denominators.
- Solve for the variable.
- Sometimes the solutions are not solutions of the original equation so you must check each solution. Solutions that are not really solutions to the original equation are called **extraneous solutions**.

Solve the equation algebraically and graphically. Check for extraneous solutions

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

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

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

d) $\frac{x+2}{x} - \frac{4}{x-1} + \frac{2}{x^2-x} = 0$