Solving Rational Equations

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Reminders in solving equations...
We isolate the variable through the order of operations (BEDMAS)

1. Remove fractions by multiplying every term by the common denominator
2. Expand brackets
3. Collect like terms
4. Combine like terms

Examples

Solve for x.

$$\begin{aligned}
\frac{x+3}{x-4} &= \frac{x-1}{x+2} \\
(x+3)(x+2) &= (x-1)(x-4) \\
x^2+5x+6 &= x^2-5x+4 \\
10x &= -2 \\
x &= \frac{-1}{5}
\end{aligned}$$

$$\begin{aligned}
\frac{x-3}{x-2} &= 0 \\
(x-3) &= 0 \\
x &= 3
\end{aligned}$$

$$\begin{aligned}
\frac{3x-1}{x} &= \frac{5}{2} \\
2(3x-1) &= 5x \\
6x-2 &= 5x \\
6x-5x &= 2 \\
x &= 2
\end{aligned}$$

$$\begin{aligned}
\frac{2}{x+1} + \frac{1}{x+1} &= 3 \\
(x+1)(\frac{2}{x+1} + \frac{1}{x+1}) &= 3 \\
2+1 &= 3(x+1) \\
1 &= x+1 \\
x &= 0
\end{aligned}$$