Equations with Rational Expressions

Review solving equations with fractions

\[
\frac{5x}{2} - \frac{2x}{3} = \frac{-11}{18}
\]

When solving equations with rational expressions (fractions), one must find the least common denominator (LCD).

Process to solve equations with rational expressions (fractions):
1. Find the LCD
2. Multiply EVERY term by the LCD to get rid of the fractions.
3. Solve the resulting equation.
4. Check your answers to make sure it does NOT cause division by ZERO.

Solve the following equations. Check answers.

1. \[
\frac{x - 4}{3} - \frac{4x + 3}{4} = \frac{11}{12}
\]
2. \[
\frac{3}{5x} + \frac{1}{x} = \frac{2}{15}
\]
3. \[
\frac{x}{6} - \frac{2}{x} = -\frac{2}{3}
\]
4. \[
1 - \frac{3}{x} = \frac{-2}{x^2}
\]
5. \( \frac{7}{2x} + \frac{2}{2x+3} = \frac{21}{4x^2 + 6x} \)

6. \( \frac{x}{x-1} - \frac{6}{x+3} = \frac{4}{x^2 + 2x - 3} \)

Review: \( \frac{2}{5} = \frac{7}{x} \)

7. \( \frac{x-4}{x-14} = \frac{2x+1}{5x+2} \)