Finding the LCD of Rational Expressions Handout

Steps to Finding the LCD of Rational Expressions:

Step 1: Factor each denominator completely

Step 2: List each different factor from Step 1, the greatest number of times it appears in a denominator.

Step 3: Multiply the factors from Step 2 — this is the LCD

Example: Find the LCD of the terms

\[
\frac{4}{x}, \frac{3}{x+1}, \frac{2}{x^2+2x+1}, \frac{1}{x^2+3x+2}
\]

There are four denominators:

x, x+1, x^2+2x+1, x^2+3x+2

Step 1: Factoring each denominator we get

x, x+1, (x+1)^2, (x+1)(x+2)

Step 2: The different factors are x, x+1 and x+2

The highest power of x is 1,
the highest power of (x+1) is 2
and the highest power of (x+2) is 1

Step 3: LCD = x(x+1)^2(x+2)