Provide a clear and organized presentation. Show all of your work, give exact values only, and completely simplify your answer. Evaluate the following integral:

$$
\int \frac{2 x^{4}+16 x^{3}+40 x^{2}+47 x+22}{x^{4}+5 x^{3}+10 x^{2}+9 x+3} d x
$$

