

## Analytic Continuation References and Links

In Section 1.5 of Chapter 1 of *A Student's Guide to Laplace Transforms*, I mention that in some texts you may see s-plane plots of the Laplace transform function  $F(s)$  that extend beyond the region of convergence, and that those plots may be obtained through the process of analytic continuation.

You can see how analytic continuation can be applied to the Laplace transform of the function  $f(t) = e^{3t}$  at this LibreTexts page by Jeremy Orloff:

Analytic Continuation. (2021, September 5). Massachusetts Institute of Technology.  
<https://math.libretexts.org/@go/page/6557>

and you can find a brief introduction to analytic functions and analytic continuation at these pages on Eric Weisstein's *MathWorld*:

[Weisstein, Eric W.](https://mathworld.wolfram.com/AnalyticFunction.html) "Analytic Function." From *MathWorld*--A Wolfram Web Resource.  
<https://mathworld.wolfram.com/AnalyticFunction.html>

[Weisstein, Eric W.](https://mathworld.wolfram.com/AnalyticContinuation.html) "Analytic Continuation." From *MathWorld*--A Wolfram Web Resource.  
<https://mathworld.wolfram.com/AnalyticContinuation.html>.

You may find Marco Tavora's "Gentle Introduction" to analytic continuation helpful:

<https://www.cantorsparadise.com/a-gentle-introduction-to-analytic-continuation-c1ab92fb2ba1>

and if you'd like to understand analytic continuation in the context of complex-variable theory, see Chapter 11 of *Mathematical Methods for Physicists* by Arfken, Weber, and Harris (Academic Press, 2012) ISBN-13: 978-0123846549.