

# Uses Of Laplace Transforms In Engineering

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## Lecture 3 The Laplace transform

The Laplace Transform can be used to solve differential equations using a four step process. Take the Laplace Transform of the differential equation using the derivative property (and, perhaps, others) as necessary. Put initial conditions into the resulting equation. Solve for the output variable. Get result from Laplace Transform tables.

The Laplace transform comes in a few varieties; for engineering applications the most usual is the unilateral transform (behavior for  $t < 0$  is not relevant). Fourier transforms are often used to solve boundary value problems, Laplace transforms are often used to solve initial condition problems.

## The Laplace Transform Applications

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The Laplace transform can also be used to solve differential equations and is used extensively in mechanical engineering and electrical engineering. The Laplace transform reduces a linear differential equation to an algebraic equation, which can then be solved by the formal rules of algebra.

### Laplace transform - Wikipedia

Laplace transforms and Fourier transforms are probably the main two kinds of transforms that are used. As we will see in later sections we can use Laplace transforms to reduce a differential equation to an algebra problem.

### Differential Equations - Laplace Transforms

The Laplace transform is basically the generating function for the moments of the function. They use this in elementary probability texts, though I'm not sure if that isn't superseded by the use of the Fourier transform in more advanced texts.

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### Laplace Transform Table, Formula, Examples & Properties

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### Why do we use Laplace transform? - Quora

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Basically, a Laplace transform will convert a function in some domain into a function in another domain, without changing the value of the function. We use Laplace transform to convert equations having complex differential equations to relatively simple equations having polynomials.

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