



## \*Laplace Transformer

### Introduction

The Laplace Transform is a mathematical tool used to analyze and solve linear time-invariant systems. It converts functions from the **time domain** into the **complex frequency domain**, making it easier to handle differential equations and system behavior. This transform is widely used in engineering, control systems, and signal processing because it simplifies calculations and helps predict system responses.

\*EX{1}:

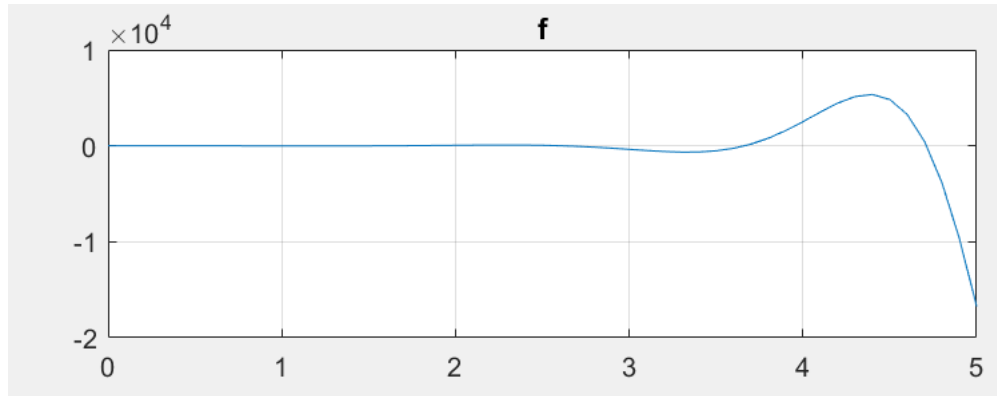
Find the Laplace Transform of the function:

$$F(t)=e^{2t} \cos 3t$$

```
close all
clear all
clc
syms t s
f = exp(2*t)*cos(3*t);
F = laplace(f);
pretty(F)
g = matlabFunction(f);
x = 0:0.1:5;
subplot(2,1,1)
plot(x, g(x))
title('f')
grid on
```



Al-Mustaqbal University / College of Engineering & Technology  
Medical Device Technology Engineering  
Class (3<sup>rd</sup>)  
Subject (Signs and systems)  
Lecturer (B.M.E Fatima ehsan )  
Lecture No.3 & Lecture Name (Laplace Transformer)



### \*EX{2}

Find the Laplace Transform of the function:

$$F(t)=7e^{-3t}$$

```
close all
clear all
clc
syms t s
f = 7*exp(-3*t);
F = laplace(f);
pretty(F)
g = matlabFunction(f);
x = 0:0.1:5;
subplot(2,1,1)
plot(x, g(x))
title('f')
grid on
```



Al-Mustaqbal University / College of Engineering & Technology

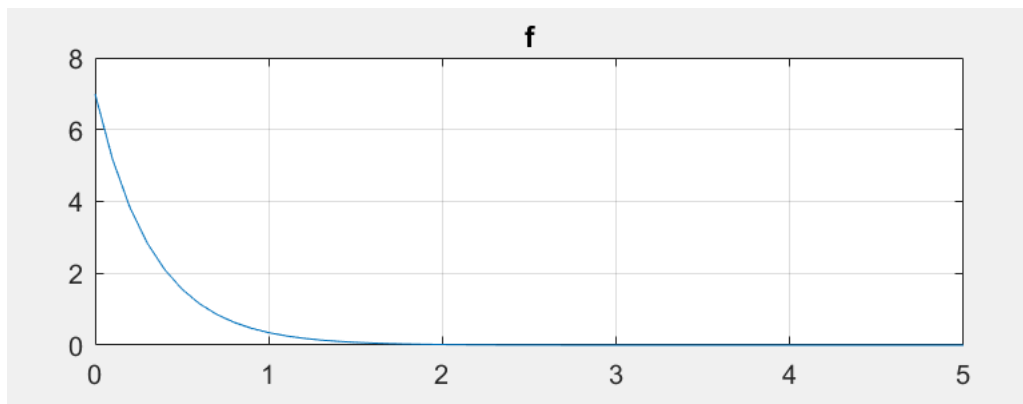
Medical Device Technology Engineering

Class (3<sup>th</sup>)

Subject (Signs and systems)

Lecturer (B.M.E Fatima ehsan )

Lecture No.3 & Lecture Name (Laplace Transformer)



### Discussion:

Q\ Find the Laplace Transform of the function:

1)  $e^{-t} t \cos 2t$

2)  $e^{2t} \cos 3t$