1.- Find Inverse Transform Laplace of \( Y(s) = \frac{4(s + 1)}{(s + 2)(s + 3)^2} \)

2.- Consider a system that is described in the time domain by the following differential equation:

\[
17 \frac{d^2 r(t)}{dt^2} + 51 r(t) = \frac{d^2 c(t)}{dt^2} + 7 \frac{dc(t)}{dt} + 12 c(t)
\]

with initial conditions equal to zero.

a) Find the transfer function for the system
b) Find the output signal in the time domain if the input signal is a step function with an amplitude of 4 units.

3.- Given \( F(s) = \frac{3s + 2}{(s^2 + 2s + 10)(s^2 + 4s + 8)} \), find \( f(t) \)

4.- Find \( y(t) \) given \( Y(s) = \frac{612}{(s + 3)(s^2 + 6s + 34)} \)

5. Given \( C(s) = \frac{s + 1}{s^2 - 16} \), find its Inverse Laplace Transform \( c(t) \)

6. Find Inverse Transform Laplace of \( Y(s) = \frac{3 - 6e^{-2s}}{(s + 2)(s + 3)} \)