2008
II-Amer
amir A
Dr. Sį

CISE 302: Linear Control Systems

Properties of Laplace Transform

Problem S5.2

Find the Laplace transform of $f(t) = e^{-kt} \sin(bt)$ where k and b are constants.

Solution

Let g(t) be defined as
$$g(t) = \sin(bt)$$
 then $G(s) = \frac{b}{s^2 + b^2}$

Applying the property
$$L\{f(t)e^{-\alpha t}\}=F(s+\alpha)$$
, we have $F(s)=\frac{b}{(s+k)^2+b^2}$