Problem S4.10

Obtain the inverse Laplace transform of $\frac{3}{s^2+4s+3.91}$

Solution:

$$\frac{3}{s^2+4s+3.91}=\frac{A}{s+2.3}+\frac{B}{s+1.7}$$

$$A=(s+2.3)\frac{3}{(s+2.3)(s+1.7)}\bigg|_{s=-2.3}=-5$$

$$B=(s+1.7)\frac{3}{(s+2.3)(s+1.7)}\bigg|_{s=-1.7}=5$$

$$\frac{3}{s^2+4s+3.91}=\frac{-5}{s+2.3}+\frac{5}{s+1.7}$$

$$f(t)=-5e^{-2.3t}+5e^{-1.7t}$$