

TWK2A IVPs using the Laplace transform (Section 7.2) Problems

Solve the following IVPs using the Laplace transform:

1. $y' + 6y = e^{4t}$ with $y(0) = 2$.
2. $y'' - 4y' = 6e^{3t} - 3e^{-t}$ with $y(0) = 1, y'(0) = -1$.
3. $2y''' + 3y'' - 3y' - 2y = e^{-t}$ with $y(0) = 0, y'(0) = 0, y''(0) = 1$.
4. $2y' + y = 0$ with $y(0) = -3$.
5. $y'' + 9y = e^t$ with $y(0) = 0, y'(0) = 0$.
6. $y''' + 2y'' - y' - 2y = \sin 3t$ with $y(0) = 0, y'(0) = 0, y''(0) = 1$.
7. $y'' + y = \sqrt{2} \sin(\sqrt{2}t)$ with $y(0) = 10, y'(0) = 0$.
8. $y' - y = 2 \cos 4t$ with $y(0) = 0$.
9. $2y'' - 2y' - 4y = \sin 3t$ with $y(0) = 0, y'(0) = 1$.