

Řešte pomocí Laplaceovy transformace.

20. $x'' + x' - 6x = 3, x(0) = 0, x'(0) = -1.$
21. $x''' - 4x'' + 4x' = 0, x(0) = x'(0) = 0, x''(0) = 1.$
22. $x''' = \cos t, x(0) = x''(0) = 0, x'(0) = 1.$
23. $x^{(4)} = t^4, x(0) = x'(0) = x''(0) = x'''(0) = 1.$
24. $x'' + 9x = 3t, x(0) = x'(0) = 0.$
25. $x'' + 9x = \sin 3t, x(0) = x'(0) = 0.$
26. $x'' + 4x' + 8x = 0, x(0) = 1, x'(0) = 0.$
27. $x'' - 4x' + 5x = 5t, x(0) = 0, x'(0) = 5.$
28. $x''' + x'' - 3x' - 3x = 3t, x(0) = 1, x'(0) = x''(0) = 0.$
29. $x''' - 3x'' + 3x' - x = 4e^{-t}, x(0) = x'(0) = x''(0) = 0.$
30. $x^{(4)} - 8x'' + 16 = 16, x(0) = x'(0) = x''(0) = 0, x'''(0) = -16.$
31. $x^{(4)} - x'' = 2 \sin t, x(0) = 2, x'(0) = x'''(0) = 0, x''(0) = 1.$
32. $x(t) + \int_0^t se^{3s}x(t-s)ds = \cos 2t.$
33. $x(t) + 4 \int_0^t s^2x(t-s)ds = t.$
34. $3x(t) + 7 \int_0^t \sin 3sx(t-s)ds = 2t + 1.$
35. $x(t) - \int_0^t se^{8s}x(t-s)ds = e^{7t}.$
36. $x(t) = t + \int_0^t sx(t-s)ds.$
37. $x(t) = \cos 2t + \int_0^t \sin sx(t-s)dx.$
38. $x'(t) + 2x(t) + 5 \int_0^t x(s)ds = 0, x(0) = 1.$
39. $x'(t) - 8 \int_0^t s^2x(t-s)ds, x(0) = 2.$
40. * $\int_0^t x(s)x(t-s)ds = \sin t.$ (Užijte úlohu 19.)