Übungen zu Differentialgleichungen 2. Ordnung

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1 $y'' + 3y' + 2y = 12x + 20, \quad y\big(0\big) = 1, y'\big(0\big) = 0$ $6x + 1 - 6e^{-x} + 6e^{-2x}$

2 $y'' + 2y' + y = 2e^{-x}, \quad y\big(0\big) = 0, y'\big(0\big) = 1$ $x^2e^{-x} + xe^{-x}$

3 $y'' + y = x, \quad y\big(0\big) = 1, y'\big(0\big) = -1$ $x - 2\sin x + \cos x$

4 $y'' - 2y' - 15y = -45x^2 - 87x + 26, \quad y\big(0\big) = -1, y'\big(0\big) = -6$

$3x^2 + 5x - 2 + 2e^{-3x} - e^{-5x}$

5 $y'' + 2y' + 5y = 4\cos\big(x\big) + 8\sin\big(x\big), \quad y\big(0\big) = 3, y\big(\pi\big) = 3e^{-\pi}$

$2\sin x + 3e^{-x}\cos\big(2x\big) - 2e^{-x}\sin\big(2x\big)$