練習問題(提出なし)

番号：　　名前：

出題：令和 2 年 01 月 24 日 (金)

1　次の 1 階微分方程式を解け.

(1) $x' + 2x = t^2 + 2t + 1,\ x(0) = 1$

(2) $x' + 3x = 2t^2 + 3t + 2,\ x(0) = 1$

(3) $x' + 4x = 3t^2 + 2t + 5,\ x(0) = 1$

(4) $x' + 5x = 2t^2 + 3t + 4,\ x(0) = 1$

(5) $2x' + 3x = t^2 + 4t + 5,\ x(0) = 1$

(6) $2x' + 5x = t^2 + 5t + 6,\ x(0) = 1$

(7) $3x' + 3x = 2t^2 + t + 5,\ x(0) = 1$

(8) $4x' + x = 2t^2 + 3t + 5,\ x(0) = 1$

(9) $x' + 2x = 4\cos t + 5\sin 2t,\ x(0) = 1$

(10) $x' + 3x = 4\cos 3t + 5\sin 2t,\ x(0) = 1$

(11) $x' + 4x = 4\cos 2t + 5\sin 3t,\ x(0) = 1$

(12) $x' + 5x = 4\cos 2t + 5\sin t,\ x(0) = 1$

(13) $2x' + 3x = 4\cos 2t + 5\sin 2t,\ x(0) = 1$

(14) $2x' + 5x = 4\cos t + 5\sin 2t,\ x(0) = 1$

(15) $3x' + 3x = 4\cos 3t + 5\sin 2t,\ x(0) = 1$

(16) $4x' + x = 4\cos t + 5\sin t,\ x(0) = 1$

(17) $x' + 2x = 5\mathrm{e}^{2t} + 8,\ x(0) = 1$

(18) $x' + 3x = 5\mathrm{e}^{-2t} + 6,\ x(0) = 1$

(19) $x' + 4x = 5\mathrm{e}^{-2t} - 8,\ x(0) = 1$

(20) $x' + 5x = 5\mathrm{e}^{-5t} - 20,\ x(0) = 1$

(21) $2x' + 3x = 5\mathrm{e}^{-2t} + 9,\ x(0) = 1$

(22) $2x' + 5x = 5\mathrm{e}^{-3t} + 10,\ x(0) = 1$

(23) $3x' + 3x = 5\mathrm{e}^{-t} + 6,\ x(0) = 1$

(24) $4x' + x = 5\mathrm{e}^{-3t} + 7,\ x(0) = 1$

(25) $x' + 3x = \mathrm{e}^{-3t},\ x(0) = 1$

2　次の 2 階微分方程式を解け.

(1) $x'' + 3x' + 2x = t^2 + 2t,\ x(0) = 1,\ x'(0) = 1$

(2) $x'' + 5x' + 6x = -3t + 2,\ x(0) = 1,\ x'(0) = 1$

(3) $x'' + 4x' + 4x = 3t^2 + 5,\ x(0) = 1,\ x'(0) = 1$

(4) $x'' + 2x' + 2x = 2t^2 + 3t,\ x(0) = 1,\ x'(0) = 1$

(5) $x'' + 4x' + 5x = 4t + 5,\ x(0) = 1,\ x'(0) = 1$

(6) $x'' + 2x' + 5x = 5t + 6,\ x(0) = 1,\ x'(0) = 1$

(7) $x'' + 4x' + x = -t + 2,\ x(0) = 1,\ x'(0) = 1$

(8) $x'' + 2x' + 2x = 1,\ x(0) = 1,\ x'(0) = 1$

(9) $x'' + 6x' + 12x = 4\cos t,\ x(0) = 1,\ x'(0) = 1$

(10) $x'' + 4x' + x = 3\sin 2t,\ x(0) = 1,\ x'(0) = 1$

(11) $x'' + 3x' + 2x = 2\cos 3t,\ x(0) = 1,\ x'(0) = 1$

(12) $x'' + 5x' + 6x = 5\sin 2t,\ x(0) = 1,\ x'(0) = 1$

(13) $x'' + 4x' + 4x = 4\cos t,\ x(0) = 1,\ x'(0) = 1$

(14) $x'' + 2x' + 2x = 5\sin 2t,\ x(0) = 1,\ x'(0) = 1$

(15) $x'' + 4x' + 5x = 2\cos 3t,\ x(0) = 1,\ x'(0) = 1$

(16) $x'' + 6x' + 12x = 3\sin t,\ x(0) = 1,\ x'(0) = 1$

(17) $x'' + 4x' + x = \cos t,\ x(0) = 1,\ x'(0) = 1$

(18) $x'' + 3x' + 2x = 5\mathrm{e}^{2t} + 8,\ x(0) = 1,\ x'(0) = 1$

(19) $x'' + 5x' + 6x = \mathrm{e}^{-2t} + 6,\ x(0) = 1,\ x'(0) = 1$

(20) $x'' + 4x' + 4x = 5\mathrm{e}^{-t},\ x(0) = 1,\ x'(0) = 1$

(21) $x'' + 2x' + 2x = 4\mathrm{e}^{-2t},\ x(0) = 1,\ x'(0) = 1$

(22) $x'' + 4x' + 5x = \mathrm{e}^{-3t} + 6,\ x(0) = 1,\ x'(0) = 1$

(23) $x'' + 6x' + 12x = \mathrm{e}^{-t},\ x(0) = 1,\ x'(0) = 1$

(24) $x'' + 4x' + x = \mathrm{e}^{-4t} + 6,\ x(0) = 1,\ x'(0) = 1$

(25) $x'' + 4x' + 3x = \mathrm{e}^{-2t} + 6,\ x(0) = 1,\ x'(0) = 1$