แบบฝึกหัดสมการเชิงอนุพันธ์เชิงเส้นไม่เอกพันธุ์

ข้อ 1. – ข้อ 54. จงหาผลเฉลยทั่วไปของสมการเชิงเส้นไม่เอกพันธุ์

1. $y'' + 16y = e^{3x}$
2. $y'' + 3y' - 10y = x(e^{x} + 1)$
3. $y'' - y' - 6y = 2\sin 3x$
4. $y'' - y' - 2y = 3x + 4$
5. $y'' + y' + y = \sin^2 x$
6. $4y'' + 4y' + y = 3xe^{x}$
7. $2y'' + 4y' + 7y = x^2$
8. $y'' + 2y' + 5y = e^{x}\sin x$
9. $y'' + 9y = 2\cos 3x + 3\sin 3x$
10. $y''' + 4y' = 3x - 1$
11. $y^{(5)} + 5y^{(4)} - y = 17$
12. $2y'' + 4y' + 7y = x^2$
13. $y''' + y' = 2 - \sin x$
14. $y^{(4)} + 8y' = 4$
15. $y''' + 4y'' + 3y' = x^2\cos x - 3x$
16. $y''' - y = e^{x} + 7$
17. $y'' + y = \sin x + x\cos x$
18. $y'' + 9y = 2x^2e^{3x} + 5$
19. $y''' + 10y'' + 25y' + 14y = e^{x}$
20. $(D^2 + 25)y = 20\sin 5x$
21. $y'' + 6y' + 8y = 3e^{-2x} + 2x$
22. $(D^2 + 4)y = 4\cos x + 3\sin x - 8$
23. $(D^2 + 25)y = 6\sin x$
24. $(D^2 + 4)y = \cos^2 x$
25. $(D^2 - 4)y = 4\cos x + 3e^{x} - 8$
26. $(D^2 - 4)y = e^{2x} + 8$
27. $(D^2 + 1)y = \sec x$
28. $(D^2 - 4)y = \dfrac{e^{2x}}{x}$
29. $(D^2 + 1)y = \tan x$
30. $(D^2 + 1)y = \sec x\tan x$
31. $(D^2 + 1)y = \sec^2 x$
32. $(D^2 + 3D + 2)y = \dfrac{1}{1 + e^{x}}$
33. $(D^2 - 2D + 1)y = \dfrac{e^{x}}{1 + x^2}$
34. $(D^2 + 3D + 2)y = \sin(e^{x})$
35. $(D^2 - 2D + 1)y = e^{t}\arctan t$
36. $(D^2 + 2D + 1)y = e^{-t}\ln t$
37. $(3D^2 - 6D + 6)y = e^{x}\sec x$
38. $(4D^2 - 4D + 1)y = e^{x/2}\sqrt{1 - x^2}$
39. $(2D^2 + 2D + 1)y = 4\sqrt{x}$
40. $(D^2 + 1)y = \csc^2 x$
41. $(D^2 - 3D + 2)y = (1 + e^{2x})^{-1/2}$
42. $(D^2 + 2D + 1)y = (e^{x} - 1)^{-2}$
43. $(D^2 - 3D + 2)y = \cos(e^{-x})$
44. $(D^2 - 1)y = 2e^{x}(1 + e^{-2x})^{-2}$

45. $(D^2-3D+2)y=\dfrac{e^{2x}}{1+e^{2x}}$

46. $(D^2+1)y=\csc x\cot x$

47. $(D^2+1)y=\csc x\sec^2 x$

48. $(D^2-1)y=e^{-2x}\sin(e^{-x})$

49. $(D^2+2D+2)y=e^{x}\csc x$

50. $(D^2-1)y=2(1-e^{-2x})^{-1/2}$

51. $y'''+y'=\tan x$

52. $y'''+4y'=\sec 2x$

53. $y'''-3y''+3y'-y=\dfrac{2e^{x}}{x^2}$

54. $y'''+y'=\csc x$