Лабораторная работа № 5

Найти решение краевой задачи:

1. $y'' + 2y' = 4\mathrm{e}^{x}\left(\sin x + \cos x\right).$ $y(0) = 1;\quad y'(1) = 2.$

2. $y'' - 4y' + 4y = -\mathrm{e}^{2x}\sin 6x.$ $y(0) = 2;\quad y'(1) = 2.$

3. $y'' + 2y' = -2\mathrm{e}^{x}\left(\sin x + \cos x\right).$ $y(0) = 1;\quad y'(2) = 2.$

4. $y'' + y = 2\cos 7x + 3\sin 7x.$ $y(0) = 0;\quad y'(1) = 2.$

5. $y'' + 2y' + 5y = -\sin 2x.$ $y(0) = 1;\quad y'(1) = 2.$

6. $y'' - 4y' + 8y = \mathrm{e}^{x}\left(5\sin x - 3\cos x\right).$ $y(0) = 0;\quad y'(1) = 1.$

7. $y'' + 2y' = \mathrm{e}^{x}\left(\sin x + \cos x\right).$ $y(0) = 0;\quad y'(2) = 2.$

8. $y'' - 4y' + 4y = \mathrm{e}^{2x}\sin 3x.$ $y(0) = 1;\quad y'(2) = 1.$

9. $y'' + 6y' + 13y = \mathrm{e}^{-3x}\cos 4x.$ $y(0) = 1;\quad y'(1) = 2.$

10. $y'' + y = 2\cos 3x - 3\sin 3x.$ $y(1) = 0;\quad y'(2) = 2.$

11. $y'' + 2y' + 5y = -2\sin x.$ $y(0) = 1;\quad y'(1) = 2.$

12. $y'' - 4y' + 8y = \mathrm{e}^{x}\left(-3\sin x + 4\cos x\right).$ $y(0) = 1;\quad y'(2) = 2.$

13. $y'' + 2y' = 10\mathrm{e}^{x}\left(\sin x + \cos x\right).$ $y(0) = 0;\quad y'(1) = 2.$

14. $y'' - 4y' + 4y = \mathrm{e}^{2x}\sin 5x.$ $y(0) = 1;\quad y'(2) = 2.$

15. $y'' + y = 2\cos 5x + 3\sin 5x.$ $y(0) = 1;\quad y'(1) = 2.$

16. $y'' + 2y' + 5y = -17\sin 2x.$ $y(0) = 1;\quad y'(1) = 0.$

17. $y'' + 6y' + 13y = \mathrm{e}^{-3x}\cos x.$ $y(0) = 1;\quad y'(2) = 2.$

18. $y'' - 4y' + 8y = \mathrm{e}^{x}\left(3\sin x + 5\cos x\right).$ $y(1) = 1;\quad y'(2) = 0.$

19. $y'' + 2y' = 6\mathrm{e}^{x}\left(\sin x + \cos x\right).$ $y(0) = 1;\quad y'(1) = 0.$

20. $y'' - 4y' + 4y = -\mathrm{e}^{2x}\sin 4x.$ $y(0) = 1;\quad y'(2) = 2.$

21. $y'' + 6y' + 13y = -\mathrm{e}^{3x}\cos 5x.$ $y(1) = 1;\quad y'(2) = 0.$

22. $y'' + y = 2\cos 7x - 3\sin 7x.$ $y(1) = 1;\quad y'(2) = 2.$

23. $y'' + 2y' + 5y = -\cos x.$ $y(0) = 1;\quad y'(1) = 2.$

24. $y'' - 4y' + 8y = \mathrm{e}^{x}\left(2\sin x - \cos x\right).$ $y(0) = 0;\quad y'(1) = 2.$

25. $y'' + 2y' = 3\mathrm{e}^{x}\left(\sin x + \cos x\right).$ $y(0) = 1;\quad y'(1) = 1.$

26. $y'' - 4y' + 4y = \mathrm{e}^{2x}\sin 4x.$ $y(0) = 1;\quad y'(2) = 2.$

27. $y'' + 6y' + 13y = \mathrm{e}^{-3x}\cos 8x.$ $y(0) = 1;\quad y'(1) = 1.$

28. $y'' + 2y' + 5y = 10\cos x.$ $y(0) = 2;\quad y'(1) = 0.$

29. $y'' + y = 2\cos 4x + 3\sin 4x.$ $y(1) = 0;\quad y'(2) = 2.$

30. $y'' - 4y' + 8y = \mathrm{e}^{x}\left(-\sin x + 2\cos x\right).$ $y(0) = 1;\quad y'(1) = 2.$