

Контрольная работа №4. Дифференциальные уравнения.

- |     |                              |     |                                 |     |                             |
|-----|------------------------------|-----|---------------------------------|-----|-----------------------------|
| 1.  | $y' = \sin(x + \pi/2)$       | 23. | $y'' = 12x^2 - 2$               | 44. | $y^{IV} - 2y'' = 0$         |
| 2.  | $y' = \cos(\pi - x)$         | 24. | $y^{IV} = 1$                    | 45. | $y''' - 3y'' + 3y' - y = 0$ |
| 3.  | $y' = e^{x+5}$               | 25. | $y'' = \sin(2x)$                | 46. | $y^{IV} + 4y = 0$           |
| 4.  | $y' = ax^2 + bx + c$         | 26. | $y'' = x \sin x$                | 47. | $y^{IV} + 8y'' + 16y = 0$   |
| 5.  | $y' = a^x$                   | 27. | $y''' = y''$                    | 48. | $y^{IV} + y' = 0$           |
| 6.  | $y' = x^n$                   | 28. | $xy'' = 1$                      | 49. | $y^{IV} - 2y'' + y = 0$     |
| 7.  | $y' = 1 - \frac{1}{x}$       | 29. | $y'' = x e^x$                   | 50. | $y^{IV} + 2y''' + y'' = 0$  |
| 8.  | $y' = \frac{x}{2} + 1$       | 30. | $y^{(20)} = \cos x$             | 51. | $y'' - 4y' = x^2$           |
| 9.  | $y' = \cos x$                | 31. | $y'' - 5y' + 6y = 0$            | 52. | $y'' + 9y = \cos 2x$        |
| 10. | $y' = \sin x$                | 32. | $y'' - y' = 0$                  | 53. | $y'' - 4y' + 4y = \sin 2x$  |
| 11. | $xy' - 1 = y^2$              | 33. | $y'' - 2y' + 2y = 0$            | 54. | $y'' + 2y' + 2y = e^x$      |
| 12. | $xyy' = 1 - x^2$             | 34. | $y'' + 2y' + y = 0$             | 55. | $y'' - 5y' + 6y = x e^{2x}$ |
| 13. | $y - xy' = a(1 + x^2y')$     | 35. | $y'' - ky = 0 \quad (k \neq 0)$ | 56. | $y'' - 2y' + 5y = x e^x$    |
| 14. | $y' \operatorname{tg} x = y$ | 36. | $y' - y = 3y''$                 | 57. | $y'' - y = e^x$             |
| 15. | $y = xy' - 3$                | 37. | $y'' - 9y = 0$                  | 58. | $y'' - 2y' + y = \sin x$    |
| 16. | $x^3y' = y + 5$              | 38. | $y'' + y = 0$                   | 59. | $y'' - 2y' + 5y = e^x$      |
| 17. | $(x + 2)y' = y^2 + 1$        | 39. | $y'' + 4y' + 13y = 0$           | 60. | $y'' - y' + y = x^3 + 6$    |
| 18. | $y'x = y^2$                  | 40. | $y'' - 4y' + 2y = 0$            |     |                             |
| 19. | $xy = y'$                    | 41. | $y''' - 13y'' + 12y' = 0$       |     |                             |
| 20. | $y' = x^2 + 1$               | 42. | $y''' - y' = 0$                 |     |                             |
| 21. | $y'' = y'$                   | 43. | $y''' + y = 0$                  |     |                             |
| 22. | $y'y'' = x$                  |     |                                 |     |                             |

### Соответствие номеров заданий вариантам

<b>Вариант</b>	<b>№1</b>	<b>№2</b>	<b>№3</b>	<b>№4</b>	<b>№5</b>	<b>№6</b>
1	1	20	21	40	41	60
2	2	19	22	39	42	59
3	3	18	23	38	43	58
4	4	17	24	37	44	57
5	5	16	25	36	45	56
6	6	15	26	35	46	55
7	7	14	27	34	47	54
8	8	13	28	33	48	53
9	9	12	29	32	49	52
10	10	11	30	31	50	51
11	1	19	30	32	47	52
12	2	20	29	31	46	53
13	3	17	28	33	45	54
14	4	18	27	34	44	55
15	5	15	26	35	43	56
16	6	16	25	36	42	57
17	7	13	24	37	41	58
18	8	14	23	38	50	59
19	9	11	22	39	49	60
20	10	12	21	40	48	51
21	1	16	29	34	46	52
22	2	17	28	35	47	53
23	3	18	27	36	44	54
24	4	19	26	37	43	55
25	5	20	25	38	42	56