Условие 1

1. $y'=x+\frac{y}{2}$, $y(1,8)=2,6$

2. $y'=x+\frac{y}{3}$, $y(1,6)=4,6$

3. $y'=x+\frac{y}{4}$, $y(0,6)=0,8$

4. $y'=x-\frac{y}{2}$, $y(0,5)=0,6$

5. $y'=x-\frac{y}{3}$, $y(1,7)=5,3$

6. $y'=x-\frac{y}{4}$, $y(1,4)=2,2$

7. $y'=x+\frac{y}{5}$, $y(1,4)=2,5$

8. $y'=x+\frac{y}{8}$, $y(1,2)=2,1$

9. $y'=x+\frac{y}{10}$, $y(1,2)=2,1$

10. $y'=x-\frac{y}{5}$, $y(2,1)=2,5$

11. $y'=x-\frac{y}{8}$, $y(1,8)=2,6$

12. $y'=x-\frac{y}{10}$, $y(1,6)=4,6$

13. $y'=\frac{x}{2}+y$, $y(0,6)=0,8$

14. $y'=\frac{x}{3}+y$, $y(0,5)=0,6$

15. $y'=\frac{x}{4}+y$, $y(1,7)=5,3$

16. $y'=\frac{x}{2}-y$, $y(1,4)=2,2$

17. $y'=\frac{x}{3}-y$, $y(1,4)=2,5$

18. $y'=\frac{x}{4}-y$, $y(0,8)=1,3$

19. $y'=\frac{x}{5}+y$, $y(1,1)=1,5$

20. $y'=\frac{x}{8}+y$, $y(0,6)=1,2$

21. $y'=\frac{x}{10}+y$, $y(0,5)=1,8$

22. $y'=\frac{x}{5}-y$, $y(0,2)=1,1$

23. $y'=\frac{x}{8}-y$, $y(0,1)=0,8$

24. $y'=\frac{x}{10}-y$, $y(0,5)=0,6$

25. $y'=x^2+y$, $y(1,2)=1,4$

26. $y'=x^2+\frac{y}{2}$, $y(0,4)=0,8$

27. $y'=x^2+\frac{y}{3}$, $y(0,3)=0,9$

28. $y'=x^2-y$, $y(0,7)=2,1$

29. $y'=x^2-\frac{y}{2}$, $y(0,7)=2,1$

30. $y'=x^2-\frac{y}{3}$, $y(0,9)=1,7$

Условие 2

1. $y' = 1 + 0{,}2y\sin x - y^2$

2. $y' = \cos(x + y) + 0{,}5(x - y)$

3. $y' = \dfrac{\cos y}{1 + x} - 0{,}5y^2$

4. $y' = (1 - y^2)\cos x + 0{,}6y$

5. $y' = 1 + 0{,}4y\sin x - 1{,}5y^2$

6. $y' = \dfrac{\cos y}{2 + x} + 0{,}3y^2$

7. $y' = \cos(1{,}5x + y) + (x - y)$

8. $y' = 1 - \sin(y + x) + \dfrac{0{,}5y}{x + 2}$

9. $y' = \dfrac{\cos y}{1{,}5 + x} + 0{,}1y^2$

10. $y' = 1 + 0{,}6\sin x - 1{,}25y^2$

11. $y' = \cos(2x + y) + 1{,}5(x - y)$

12. $y' = 1 - \dfrac{0{,}1y}{x + 2}\sin(2x + y)$

13. $y' = \dfrac{\cos y}{1{,}25 + x} - 0{,}1y^2$

14. $y' = 1 + 0{,}8y\sin x - 2y^2$

15. $y' = \cos(1{,}5x + y) + 1{,}5(x - y)$

16. $y' = 1 - \sin(2x + y) + \dfrac{0{,}3y}{x + 2}$

17. $y' = \dfrac{\cos y}{1{,}75 + x} - 0{,}5y^2$

18. $y' = 1 + (1 - x)\sin y - (2 + x)y$

19. $y' = (0{,}8 - y^2)\cos x + 0{,}3y$

20. $y' = 1 + 2{,}2\sin x + 1{,}5y^2$

21. $y' = \cos(x + y) + 0{,}75(x - y)$

22. $y' = \cos(1{,}5x + y) - 2{,}25(x - y)$

23. $y' = \dfrac{\cos y}{2 + x} - 0{,}3y^2$

24. $y' = 1 - \sin(1{,}75x + y) + \dfrac{0{,}1y}{x + 2}$

25. $y' = \dfrac{\cos y}{1{,}25 + x} - 0{,}5y^2$

26. $y' = 1 - \sin(1{,}25x + y) + \dfrac{0{,}5y}{x + 2}$

27. $y' = \cos(x + y) + 0{,}5(x - y)$

28. $y' = 1 - (x - 1)\sin y + 2(x + y)$

29. $y' = 1 - \sin(0{,}75x - y) + \dfrac{1{,}75y}{x + 1}$

30. $y' = \cos(x - y) + \dfrac{1{,}25y}{1{,}5 + x}$

Условие 3

Варианты систем дифференциальных уравнений:

1) $y' = \frac{x}{z}, z' = -\frac{x}{y},\ 1 \le x \le 2, y(1) = e, z(1) = \frac{1}{2e}, \quad y(1) = e^{-1}, z(2) = -\frac{1}{2}e^4;$

2) $y' = \frac{y^2}{z-x}, z' = y+1,\ 0 \le x \le 1, \quad y(0) = 1, z(0) = 1, \quad y(0) = 2, z(1) = 1 + 2e^2;$

3) $y' = \frac{z}{x}, z' = \frac{z(y+2z-1)}{x(y-1)}, 1 \le x \le 2,\ y(1) = \frac{1}{2}, z(1) = \frac{1}{4}, \quad y(1) = \frac{1}{3}, z(2) = \frac{1}{4};$

4) $y' = y^2 z, z' = \frac{z}{x} - yz^2, 1 \le x \le 2, \quad y(1) = e, z(1) = \frac{2}{e}, \quad y(1) = 2e, z(2) = \frac{2}{e^4};$

5) $y' = \frac{y^2}{2z} - \frac{z}{2} + \frac{1}{2z}, z' = z + y, 0 \le x \le 1, y(0) = -\frac{3}{4}, z(0) = \frac{5}{4}, y(0) = -1, z(1) = \frac{5}{4};$

6) $y' = z, z' = \frac{z^2}{y} + \frac{z}{x}, 1 \le x \le 2,\ y(1) = e, z(1) = 2e,\ y(1) = \sqrt[4]{e},\ z(2) = e;$

7) $y' = z, z' = \frac{z^2}{y} - \frac{x}{x^2+1}z, 0 \le x \le 1, y(0) = 1, z(0) = 1, y(0) = 1, z(1) = 3\sqrt{2} + 4;$

8) $y' = z, z' = -\frac{z^2}{y} + 2\frac{z}{x}, 1 \le x \le 2, y(1) = \sqrt{2}, z(1) = \frac{3\sqrt{2}}{4}, y(1) = \sqrt{3}, z(2) = \frac{6}{\sqrt{10}};$

9) $y' = z,\ z' = \frac{1}{x^2 y}(y - xz)^2, 1 \le x \le 2, y(1) = \frac{1}{e}, z(1) = \frac{2}{e}, y(1) = \frac{1}{e^2}, z(2) = \frac{2}{e};$

10) $y' = z,\ z' = \frac{1}{4y^3} - \frac{y}{4x^2}, 1 \le x \le 2, y(1) = 1, z(1) = \frac{1}{2}, \quad y(1) = 1, z(2) = \frac{1}{2\sqrt{2}}.$