

ZADACI ZA SAMOSTALNI RAD

1) Rešiti diferencijalnu jednačinu:

$$1. x + xy + y'(y + xy) = 0$$

$$2. (1 + x^2)y' + y\sqrt{1 + x^2} = xy, y(0) = 1$$

$$3. (1 + x^2)(y')^2 = 1 - y^2$$

$$5. yy' = e^x, y(1) = 4$$

$$6. \frac{(\sin y)y'}{x} = \frac{xe^x}{y}$$

$$7. y' + \frac{1}{x}y = e^{x^2}$$

$$9. (1 + x^2)y' + 9y = 0, y(3) = 1$$

$$10. x^3y' + 3x^2y = \sin x$$

$$11. y' \cos x - y \sin x = x^3 e^{x^2}, y(0) = 1$$

$$13. \frac{dy}{dx} + y = xy^3$$

$$14. y' + \frac{y}{x} = x^3 y^3, y(2) = 1$$

$$15. xy' + 2y = e^x y^{-1}$$

$$17. y' - xy = -y^3 e^{-x^2}$$

$$18. y' - 2y \operatorname{tg} x + y^2 \operatorname{tg}^4 x = 0, y(0) = 2$$

$$19. yy' = y - x$$

$$21. (x^2 y^2 - x^4)y' = x^2 y^2 - y^4$$

$$22. y' = \frac{y(y^2 + 3x^2)}{2x^3}, y(1) = 1$$

$$23. y' = \frac{y}{x} + \frac{x}{y}$$

$$25. y = x(y')^2 + (y')^3$$

$$26. y = 2y'x + (y')^2$$

$$27. y = -\frac{1}{2}y' + (2x + y')$$

$$29. y = x(y') + y' - (y')^2$$

$$30. y = y'x + \frac{3}{y'}$$

$$31. (y')^3 - y^4(y - xy') = 0, y = \frac{1}{z} - sm$$