

Вычислить производные:

$$1. y = \sqrt[4]{\frac{\sin 3x + 1}{3 + 2 \sin 3x}};$$

$$2. y = x^{\arcsin \frac{2x+3}{2}};$$

$$3. y = x e^{\frac{x}{a}}, x = 0;$$

$$4. y = x^2 \ln x, y'' - ?;$$

$$5. \begin{cases} x = t + \frac{1}{2} \sin t, \\ y = \cos^3 t. \end{cases};$$

$$6. \ln x + \frac{y^2}{x} = 5;$$

$$7. y = (\cos 3x)^{\arcsin x};$$

$$8. \cos(xy - y^2) = 2x + y;$$

$$9. y = x + \sqrt[5]{\frac{1+x^5}{1-x^5}};$$

$$10. y = e^{-x^2} \cos^3(2x+3);$$

$$11. y = \ln \operatorname{ctg} 4x, y'' - ?;$$

$$12. y = \sqrt{a^2 + b^2 - 2ab \cos x}, x = \frac{\pi}{2};$$

$$13. \begin{cases} x = \frac{t^3}{3} + \frac{t^2}{2} + t, \\ y = \frac{t^2}{2} + \frac{1}{t}. \end{cases};$$

$$14. y^2 = \frac{x-y}{x+y};$$

$$15. y = (\operatorname{tg} 5x)^{\arcsin(x+1)};$$

$$16. e^{x+y}(x^2 + y^2) - x = 0.$$