Derivace

Vypočtěte:

1. $\left(\sqrt[3]{x^2\sqrt{x^4\sqrt{x^3}}}\right)'$

2. $(\sin[\sin(\sin x)])'$

3. $\left(\arccos^3 5x\right)'$

4. $\left((\tan x)^{\frac{1}{\cos x}}\right)'$

5. $\left(\left(x^2+1\right)^{\arctan x}\right)'$

6. $\left(x^{e^x}\right)'$

7. $\left((\sin x)^{\cos x}\right)'$

8. $\left(x^{\ln x}\right)'$

9. $\left(\lg_{\cos x}\sin x\right)'$

10. $\left(\left(\frac{1}{x}\right)^x\right)'$

11. $\left(x\arcsin\sqrt{\frac{x}{x+1}}+\arctan\sqrt{x}-\sqrt{x}\right)'$

12. $\left(x^{x^x}\right)'$

13. $\left(\arccos\frac{1}{\sqrt{x}}\right)'$

14. $\left(\operatorname{arccot} x-\frac{1}{x}\right)'$

15. $\left(\frac{x}{2}\sqrt{x^2+1}+\ln\sqrt{x+\sqrt{x^2+1}}\right)'$

Výsledky :

1. $\frac{19}{12}\sqrt[12]{x^7}$

2. $\cos x\cos(\sin x)\cos[\sin(\sin x)]$

3. $-15\frac{\arccos^2 5x}{\sqrt{1-25x^2}}$

4. $(\tan x)^{\frac{1}{\cos x}}\frac{\sin^2 x\ln\tan x+1}{\sin x\cos^2 x}$

5. $\left(x^2+1\right)^{\arctan x-1}\left(\ln\left(x^2+1\right)+2x\arctan x\right)$

6. $x^{e^x}e^x\left(\ln x+\frac{1}{x}\right)$

7. $(\sin x)^{\cos x+1}\left(\cot^2 x-\ln\sin x\right)$

8. $2x^{\ln x-1}\ln x$

9. $\frac{\cot x\ln\cos x+\operatorname{tg} x\ln\sin x}{\ln^2\cos x}$

10. $-\left(\frac{1}{x}\right)^x(1+\ln x)$

11. $\arcsin\sqrt{\frac{x}{x+1}}$

12. $x^{x^x}x^x\left(\ln^2 x+\ln x+\frac{1}{x}\right)$

13. $\frac{1}{2x\sqrt{x-1}}$

14. $\frac{1}{x^2+x^4}$

15. $\sqrt{x^2+1}$