

Math 2215 - Calculus 1

Homework #4 - 2005.09.22

Due Date - 2005.09.27

Compute the following derivatives and simplify where possible:

1. $\frac{d}{dx} \sqrt{\frac{1+x^2}{1-x^2}}$

2. $\frac{d}{dy} e^{\frac{1}{y}} \sin(y)$

3. $\frac{d}{dz} z^2 \cos(z^2)$

4. $\frac{d}{dx} \sqrt{e^{x^2} + \cos(2x + 3)}$

5. $\frac{d}{dy} \sec^3(y^3)$

6. $\frac{d}{dz} 2^{3z^2+1}$

7. $\frac{d}{dx} \frac{e^{x^2+x+1}}{e^{x^2+x-1}}$

8. $\frac{d}{dy} \frac{e^y + e^{-y}}{e^y - e^{-y}}$

9. $\frac{d}{dz} \sin(\cos(\tan(z) + z) + z)$

10. $\frac{d}{dx} e^{2x^2+12x-4} \cos(2x^2) \sin(4x^3)$

11. $\frac{d}{dy} \frac{1+\sin(y)}{1-\sin(y)}$

12. $\frac{d}{dz} e^{z^2+2} e^{2z-1}$

13. $\frac{d}{dy} 7^{3y^2+\tan(y)}$

14. $\frac{d}{dz} \tan^4(z^3) \cot^4(z^3)$

15. $\frac{d}{dx} \left(\frac{e^{x^2} + \cos(x)}{\sin(x) + 1} \right)^7$

16. $\frac{d}{dx} (7x^2 + 3)^{74} (6x + 2)^{12} (4x^4 - 7x^3)^6$

17. $\frac{d}{dx} \sin\left(\tan(x) \sqrt{\sin(\sqrt{x})}\right)$

18. $\frac{d}{dy} e^{x^2} \cot(x) \sin(x - 1) \cos(2x + 1) \tan(34x + 12) \csc(2x + 5) \sec(45x + 124)$