Differentiation examples

1. $y = x^3 e^x$
2. $y = e^{x^3}$
3. $y = \dfrac{x^3}{e^x + 1}$
4. $y = x^3 e^{x^3}$
5. $y = \dfrac{x^2}{x^3 + 1}$
6. $y = \dfrac{x^2}{(x^3+1)^2}$
7. $y = \dfrac{1}{(x^3+1)^{10}}$
8. $y = (e^{x^3} + 1)^2$
9. $y = e^{e^{x^3}}$
10. $y = \cos(x^3)$
11. $y = e^{x^3} \cos x$
12. $y = \sin(e^x) + \cos(x^3)$
13. $y = \tan(x^3)$
14. $y = e^x \tan x$
15. $y = \sqrt{x^3 + 1}$
16. $y = e^x \sqrt{x^3 + 1}$
17. $y = \dfrac{e^x}{\sqrt{x^3 + 1}}$
18. $y = \dfrac{e^x}{\sqrt{1 + \cos x}}$
19. $y = \sqrt{e^{x^3} + 1}$
20. $y = \sqrt{e^{x^3} + \cos(x^2)}$
21. $y = x^2 \cos(x^3) + e^x \sin x$
22. $y = \sqrt{3x^3 + 4x^2 - 2}$
23. $y = (2x^3 - 3) e^{-x}$
24. $y = e^{-x^3}$
25. $y = e^x (\cos x + \sin x)$
26. $y = \dfrac{3x \sin x}{x^2 + 1}$
27. $y = \dfrac{2\cos x - \sin x}{e^x + 3}$
28. $y = \dfrac{2\cos x - \sin x}{e^x} (e^x + 3) \cos x$
29. $y = (e^x - 2) \sin(x^2)$
30. $y = (x + 2) \sin(x^2 + 2x - 1)$