Derivatives and Integrals of Expressions with "e" - Homework

Find the derivatives of the following functions:

1. $y = e^{4x}$

2. $y = 16e^{-2x}$

3. $y = x^3 e^x$

4. $y = \dfrac{e^x}{x^6}$

5. $y = e^x \tan x$

6. $y = 2\cos e^x$

7. $y = \dfrac{e^x}{\ln x}$

8. $y = \dfrac{\ln x}{e^x}$

9. $y = \left(e^x - 2x - 1\right)^3$

10. $y = \sqrt{e^{3x} - 4x}$

11. $y = -4e^{\sec x}$

12. $y = \dfrac{3}{e^x + e^{-x}}$

13. $y = \ln\left(\dfrac{1 - e^x}{1 + e^x}\right)$

14. $y = e^x\left(\sin x - \cos x\right)$

15. $y = \pi^x$

16. $y = 10^{x^2 - \sin x}$

Use implicit differentiation to find dy/dx

17. $xe^y - 2x - 3y = 0$

Find the second derivative of the following

18. $y = \sqrt{x} - e^x \ln x$