

Derivatives of Exponential Functions

In problems 1-8, find the derivative

1. $f(x) = e^{7x-1}$	2. $f(x) = e^{x^2-3x+1}$
3. $f(x) = e^{\sqrt{x-1}}$	4. $f(x) = e^{\sqrt[3]{4x-1}}$
5. $f(x) = e^{-2/x^3}$	6. $f(x) = x^3 e^{8x+3}$
7. $f(x) = \frac{e^{x^2-3}}{e^x + 2}$	8. $f(x) = \sqrt{x} e^{5x-1}$

In problems 9-10, Find the slope of the tangent line at the given point

9. $f(x) = e^{8x+1}, (0, e)$	10. $f(x) = e^{x^2-3x}, (0, 1)$
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In problems 11-13, Find the equation of the tangent line at the given point

11. $f(x) = e^{4x+1}, (0, e)$	12. $f(x) = e^{x^2-3x-1}, \left(0, \frac{1}{e}\right)$
13. $f(x) = x^4 e^{x^2-x}, (1, 1)$	

In problems 14-15, Find dy/dx implicitly

14. $x^2 e^y - 8x + y^2 = 0$	15. $4x^3 e^{4x+2} - y^2 = e^{xy}$
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