Exponential & Logarithmic Derivatives

Find the derivative of each function.

Formulas

$\frac{d}{dx}\left[\, e^u \,\right] = e^u \cdot u'$

$\frac{d}{dx}\left[\, \ln(u) \,\right] = \frac{u'}{u}$

$\frac{d}{dx}\left[\, a^u \,\right] = a^u \ln(a) \cdot u'$

1. $f(x) = 7e^x$

2. $f(x) = e^{4x}$

3. $f(x) = 2\ln(x) - 2x$

4. $f(x) = 4e^x - 2\ln(x)$

5. $f(x) = e^{-2x}$

6. $f(x) = 6\ln(x)$

7. $f(x) = e^{2x^2}$

8. $f(x) = \ln(3x + 7)$

9. $f(x) = 2^x$

10. $f(x) = \ln(4x)$

11. $f(x) = 3 \cdot 4^x$

12. $f(x) = e^{3x^2}$

13. $f(x) = e^{2x+1}$

14. $f(x) = \ln(x^2 + 3)$

15. $f(x) = e^{-x^2}$

16. $f(x) = \ln(2x^2 - 1)$

17. $f(x) = 2^{2x}$

18. $f(x) = 6 \cdot 5^{2x}$

19. $f(x) = \ln(x^2 + 2x)$

20. $f(x) = e^{x^3 - 4x}$