Examples 5.2 – Derivative and Antiderivative of e^x

1. Find the derivative of $f(x) = 3e^{x^2-4x}$.

    Solution:

2. The number of CDs sold by a music store monthly is $N(p) = 6250\left(e^{-0.074p}\right)$, where p is the price in dollars per CD. The revenue R is given by the price times the number sold at that price. That is, $R(p) = pN(p) = 6250p\left(e^{-0.074p}\right)$ dollars. At what price should the store sell CDs to maximize revenue? What is the maximum revenue?

    Solution:

3. Evaluate the integrals.

    Solution: (a) $\int \left(10e^x - 9x^2\right)dx =$

    (b) $\int e^{2x}dx =$

    (c) $\int 7e^{-t}dt =$

    (d) $\int 1.332e^{9\theta}d\theta =$