Exercise: Recognizing normal PDFs

(2/2 points)

The random variable X has a PDF of the form

$$f_X(x) = ce^{-4x^2-24x+30},$$

where c is a normalizing constant. Then,

a) $\mathbf{E}[X] =$ -3 ✔ **Answer:** -3

b) $\mathbf{var}(X) =$ 1/8 ✔ **Answer:** 0.125

Answer:
a) We recognize this as a normal PDF. The mean is at the peak of the PDF, which is found by setting the derivative of the exponent to zero: $-8x - 24 = 0$, or $x = -3$.

b) The variance is $1/(2\alpha)$, where α is the positive coefficient associated with the term x^2. Thus, the variance is $1/8$.

You have used 2 of 2 submissions


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