Let X be a random variable whose probability density function (pdf) is $f(u) = Ce^{-\frac{1}{2}\left(\frac{u^2-5}{3}\right)}$ where C is a constant. What is the product of the mean and variance of X ?

(a) None of these

(b) 25/18

(c) 15

(d) 45

(e) $5\sqrt{3}$

(f) 75

(g) $25\sqrt{3}$

(h) 225

(i) $\sqrt{15}$

(j) 1

(k) 5/3

(l) 5/9

(m) $5/\sqrt{3}$