

104. A joint density function is given by

$$f(x, y) = \begin{cases} kx & \text{for } 0 < x < 1, \ 0 < y < 1 \\ 0 & \text{otherwise,} \end{cases}$$

where k is a constant.

What is $\text{Cov}(X, Y)$?

(A) $-\frac{1}{6}$

(B) 0

(C) $\frac{1}{9}$

(D) $\frac{1}{6}$

(E) $\frac{2}{3}$