

105. Let X and Y be continuous random variables with joint density function

$$f(x, y) = \begin{cases} \frac{8}{3}xy & \text{for } 0 \leq x \leq 1, x \leq y \leq 2x \\ 0 & \text{otherwise.} \end{cases}$$

Calculate the covariance of X and Y .

- (A) 0.04
(B) 0.25
(C) 0.67
(D) 0.80
(E) 1.24