

Suppose random variables X and Y are independent. If the probability density function of X is uniform on $[1, 2]$ and the probability density function of Y is uniform on $[0, 1] \cup [2, 3]$, then what is the probability that X is greater than $2Y$?

- (a) $3/8$
- (b) $3/4$
- (c) $1/2$
- (d) $7/16$
- (e) $5/16$
- (f) 0
- (g) 1
- (h) $1/4$
- (i) $1/8$
- (j) $1/3$
- (k) $3/16$
- (l) $5/8$
- (m) None of these