

One piece of fruit is chosen randomly from a box containing 3 apples, 4 bananas, and 5 cherries. Each piece of fruit is equally likely. The random variables X and Y are defined as follows:

$$\begin{array}{ll} X(apple) = 0 & Y(apple) = 1 \\ X(banana) = 1 & Y(banana) = 1 \\ X(cherry) = -1 & Y(cherry) = 0 \end{array}$$

What is the value of the CDF difference $F_X(\frac{\sqrt{2}}{2}) - F_Y(1)$?

- (a) $-1/3$
- (b) $1/3$
- (c) $1/4$
- (d) $-1/4$
- (e) $5/12$
- (f) $-5/12$
- (g) 0
- (h) 1
- (i) -1
- (j) $7/12$
- (k) $3/4$
- (l) $2/3$
- (m) None of these