Suppose we flip a fair coin three times. Define a random variable X to equal one if we get exactly one Head in the three flips, and to be zero otherwise. Define $Y = 3X^2 + 2X - 1$. Let F_Y be the CDF of Y. What is $F_Y(-1/2)$?

(a) $5/8$

(b) $3/8$

(c) $1/8$

(d) $7/8$

(e) $1/2$

(f) $1/4$

(g) $1/9$

(h) $3/4$

(i) $1/16$

(j) $-1/2$

(k) 1

(l) 0

(m) None of these

Solution: $Y = -1$ if $X = 0$, and $Y = 4$ if $X = 1$, so $F_Y(-1/2) = P(Y = -1) = P(X = 0) = 5/8$.