Suppose we flip 5 fair coins. Let X be the number of Heads and let Y be the number of Tails. What is the probability that $X + Y$ is even?

(a) 0

(b) 1

(c) 1/2

(d) 1/5

(e) 1/3

(f) 1/4

(g) 2/3

(h) 2/5

(i) 1/25

(j) 3/5

(k) 4/5

(l) None of these.

Let X be a random variable whose CDF is $F(u) = u/2$ whenever $0 \leq u \leq 2$. What is the probability that $e^X > 2$?

(a) $1 - \ln \sqrt{2}$

(b) $\ln 2$

(c) $1 - \ln 2$

(d) $e - 1$

(e) $e - 2$

(f) $\sqrt{e} - 1$

(g) $1/2$

(h) $(\ln 2)/2$

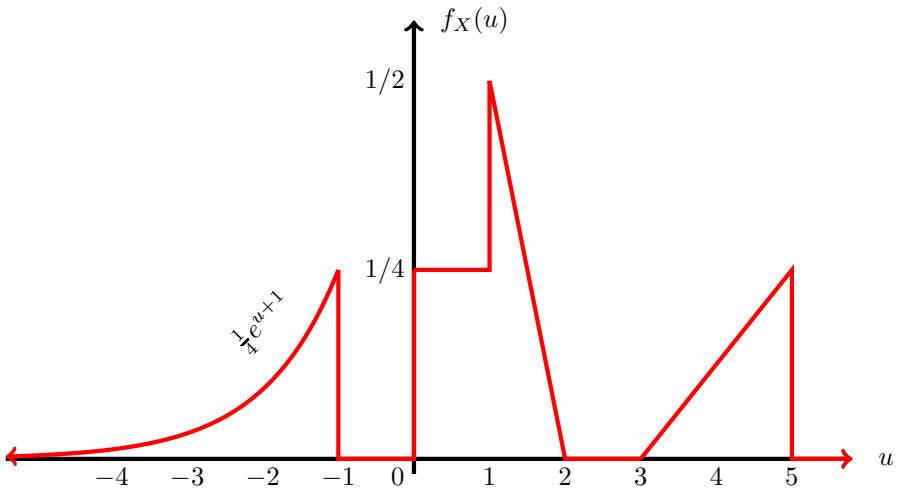
(i) $1/\sqrt{e}$

(j) 1

(k) 0

(l) None of these.

A random variable X has probability density function (pdf) shown below.



What is the cummulative distribution function (CDF) difference $F_X(2\pi) - F_X(4)$?

(a) 3/16

(b) 3/8

(c) 3/4

(d) 1/16

(e) 1/8

(f) 1/4

(g) 1/2

(h) 5/8

(i) 5/16

(j) 11/16

(k) 1

(l) 0

(m) None of these.