If random variable X is uniform on $[0, 1]$, then what is the variance of X^2 ?

(a) 4/45

(b) 2/15

(c) 1/3

(d) 1/9

(e) 1/5

(f) 1/25

(g) 1/20

(h) 1

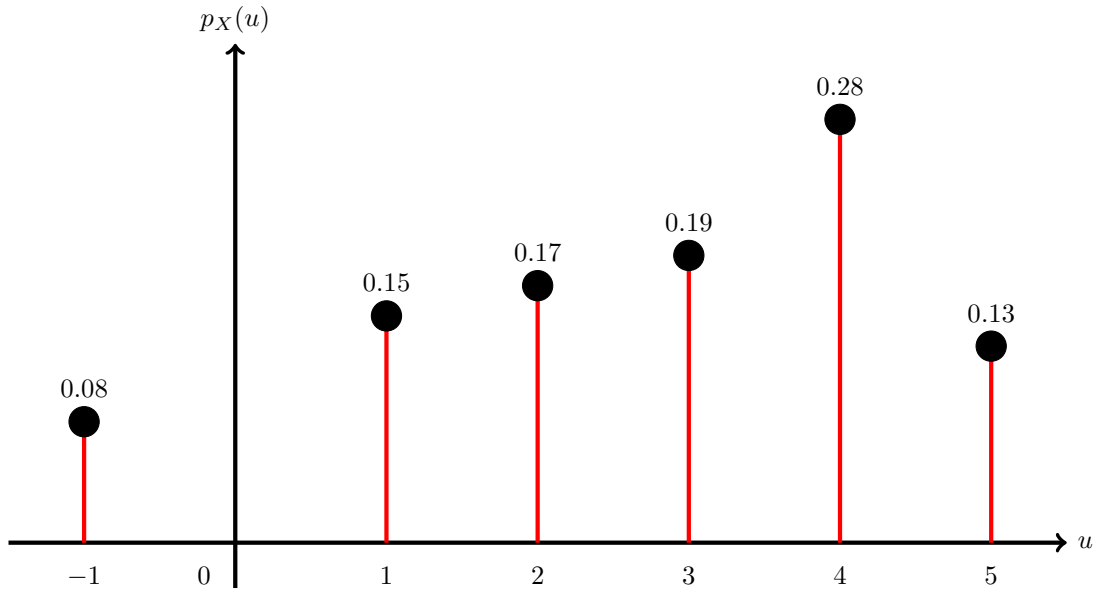
(i) 1/6

(j) 1/12

(k) 2

(l) None of these.

Suppose X is a random variable whose probability mass function is shown below. What is the probability that $(X-2)(X+2)$ is larger than $5X-8$?



(a) 0.21

(b) 0.08

(c) 0.13

(d) 0.49

(e) 0.36

(f) 0.79

(g) 0.41

(h) 0.23

(i) 0

(j) 1

(k) 0.92

(l) None of these

Suppose Y is a random variable with probability density function

$$f_Y(u) = \frac{C}{e^{u^2+u}}$$

for all u, where C is a constant. What is the mean times the variance of Y?

(a) $-1/4$

(b) $-1/2$

(c) $1/4$

(d) $1/2$

(e) 1

(f) 2

(g) -1

(h) -2

(i) $\sqrt{2}$

(j) $\sqrt{2}/2$

(k) 0

(l) None of these.