

What is the probability that a Poisson random variable with mean 2 is at least as large as $1/2$?

- (a) $(e^2 - 1)/e^2$
- (b) $1/e^2$
- (c) $e^2/(e^2 + 1)$
- (d) $(e - 1)/e^2$
- (e) $(e^2 - 2)/e^2$
- (f) $(e^2 - 1)/(e^2 + 1)$
- (g) $(e^2 - 1)/2e^2$
- (h) $1/e$
- (i) 1
- (j) 0
- (k) $1/2$
- (l) None of these

Suppose X represents the outcome of rolling a fair die once. What is the variance of $2X - 5$?

- (a) $35/3$
- (b) $70/3$
- (c) 35
- (d) $140/3$
- (e) $35/6$
- (f) $5/3$
- (g) $35/4$
- (h) 5
- (i) $28/3$
- (j) None of these

Suppose X is a Gaussian random variable with zero mean and variance 8π . Let Y be a random variable which equals X when X is positive, and equals X^2 otherwise. What is the expected value of Y ?

- (a) $2 + 4\pi$
- (b) $2 + 8\pi$
- (c) $4 + 4\pi$
- (d) $4 + 8\pi$
- (e) $2 + 4\sqrt{\pi}$
- (f) $4\sqrt{2\pi} + 4\pi$
- (g) $4\sqrt{2\pi} + 8\pi$
- (h) $-2 + 4\pi$
- (i) $2 - 4\pi$
- (j) $4 - 4\pi$
- (k) 0
- (l) None of these