Problem Set 6

1

0.0/2.0 points (graded)

If X follows Bernoulli distribution B_p, $p > 0.5$ and $V(X) = 0.24$, calculate the following:

- p

Answer: 0.6

- $E[X]$

Answer: 0.6

Submit You have used 0 of 4 attempts

Answers are displayed within the problem

2

0.0/3.0 points (graded)

A biased coin with probability 0.6 to land on head is flipped 6 times, calculate the probability of

- exactly two heads,

Answer: 0.13824

- at most one tail,

Answer: 0.23328

- even number of heads.

Answer: 0.50032

Submit You have used 0 of 4 attempts

Answers are displayed within the problem

3

0.0/1.0 point (graded)

Which of the following holds for all continuous probability distribution function $f(x)$ having support set $\mathbb{R}$?

- $\forall x \in \mathbb{R}, \quad f(x) \geq 0$ ✔
- $\forall x \in \mathbb{R}, \quad f(x) \leq 1$
- $\exists x \in \mathbb{R}, \quad f(x) \leq 1$ ✔
- $\lim_{x \to \infty} f(x) = \lim_{x \to -\infty} f(x) = 0$ ✔

Submit You have used 0 of 2 attempts

Answers are displayed within the problem

4

0.0/2.0 points (graded)
Assume the lifetimes of some kind of batteries follow exponential distribution with mean 1 year.

- What is the probability that one such batteries can be used for more than 1.5 years?

Answer: 0.22313

- What is the probability that one such batteries can be used for more than 1.5 years if it has already been used for 0.5 year?

Answer: 0.367879

Submit You have used 0 of 4 attempts

Answers are displayed within the problem

5

0.0/3.0 points (graded)
If X is a normal random variable with $\mu = -2$ and $\sigma = 3$, and has probability density function and cumulative density function $f_X(x)$, $F_X(x)$, calculate

- $P(-3 < X < 0)$

Answer: 0.378066

- $F\left(1/4\right)$

Answer: 0.773373

- $F^{-1}\left(1/4\right)$

Answer: -4.02347

Submit You have used 0 of 4 attempts

Answers are displayed within the problem