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

  [   ]

  [   ]

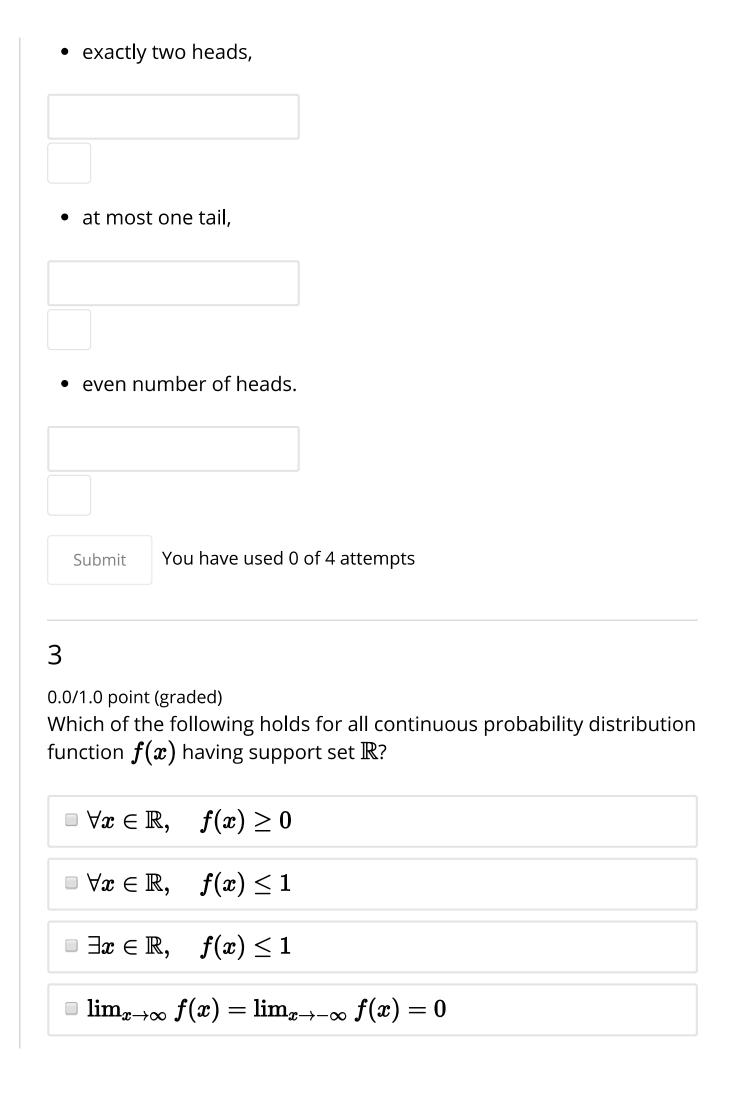- $E[X]$

  [   ]

  [   ]

  [Submit]   You have used 0 of 4 attempts

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,

[text input field]

[checkbox]

- at most one tail,

[text input field]

[checkbox]

- even number of heads.

[text input field]

[checkbox]

[Submit]   You have used 0 of 4 attempts

3

0.0/1.0 point (graded)

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

☐ $\forall x \in \mathbb{R}, \quad f(x) \geq 0$

☐ $\forall x \in \mathbb{R}, \quad f(x) \leq 1$

☐ $\exists x \in \mathbb{R}, \quad f(x) \leq 1$

☐ $\lim_{x \to \infty} f(x) = \lim_{x \to -\infty} f(x) = 0$

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?

- 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?

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

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

- $F(1/4)$

- $F^{-1}(1/4)$

Submit   You have used 0 of 4 attempts