Problem Set 5

1

0.0/2.0 points (graded)

Which of the following hold for all random variables X, Y and all real numbers a, b?

- [x] The variance of X is always non-negative. ✔
- [x] The standard deviation of X is always non-negative. ✔
- [x] If $V(X) = V(Y)$, then $V(X + a) = V(Y + b)$. ✔
- [ ] If $V(aX) = V(bX)$ for $a \neq 0$ and $b \neq 0$, then $a = b$.
- [ ] If $E[X] = E[Y]$ and $V(X) = V(Y)$, then $X = Y$.
- [x] If $E[X] = E[Y]$ and $V(X) = V(Y)$, then $E[X^2] = E[Y^2]$. ✔

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You have used 0 of 4 attempts

Answers are displayed within the problem

2

0.0/1.0 point (graded)

A quiz-show contestant is presented with two questions, question 1 and question 2, and she can choose which question to answer first. If her initial answer is incorrect, she is not allowed to answer the other question. If the rewards for correctly answering question 1 and 2 are $200 and $100 respectively, and the contestant is 60% and 80% certain of answering question 1 and 2, which question should she answer first as to maximize the expected reward?

Select an option ▾ **Answer:** question 2

Submit You have used 0 of 1 attempt

Answers are displayed within the problem

3

0.0/3.0 points (graded)

Given random variable X with following probability density distribution, calculate the following

x	-2	-1	0	1	2	3
$P(x)$	0.1	0.2	0.1	0.3	0.2	0.1

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

Answer: 0.1

- $E[X^2]$

Answer: 2.6

- $E[|X - 1|]$

Answer: 1.2

Submit You have used 0 of 4 attempts

Answers are displayed within the problem

4

0.0/2.0 points (graded)

Given independent random variables X and Y with the following joint distribution. Find

$X \setminus Y$	0	1	sum
0	b	?	0.7
1	?	0.18	?
sum	a	?	

- a

Answer: 0.4

- b

Answer: 0.28

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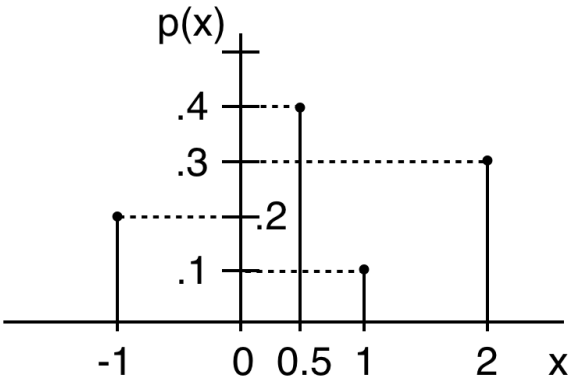
Answers are displayed within the problem

5

0.0/3.0 points (graded)

Given the following probability density function in the picture, what is



- $P(X = 1)$

Answer: 0.1

- $P(X \geq 1)$

Answer: 0.4

- $P(X \in \mathbb{Z})$

Answer: 0.6

Submit You have used 0 of 4 attempts

Answers are displayed within the problem