

<u>Course</u> > <u>Week</u>... > <u>7.9 P</u>... > Probl...

Problem Set 7

1

0.0/2.0 points (graded)

(Markov variaitions)

In the following problems, modify X and appply Markov's inequality to upper bound $P(X \geq 3)$ when

ullet $X \geq 2$ and E[X] = 2.5

ullet $X\geq 0$ and $E[X^2]=5$

Submit

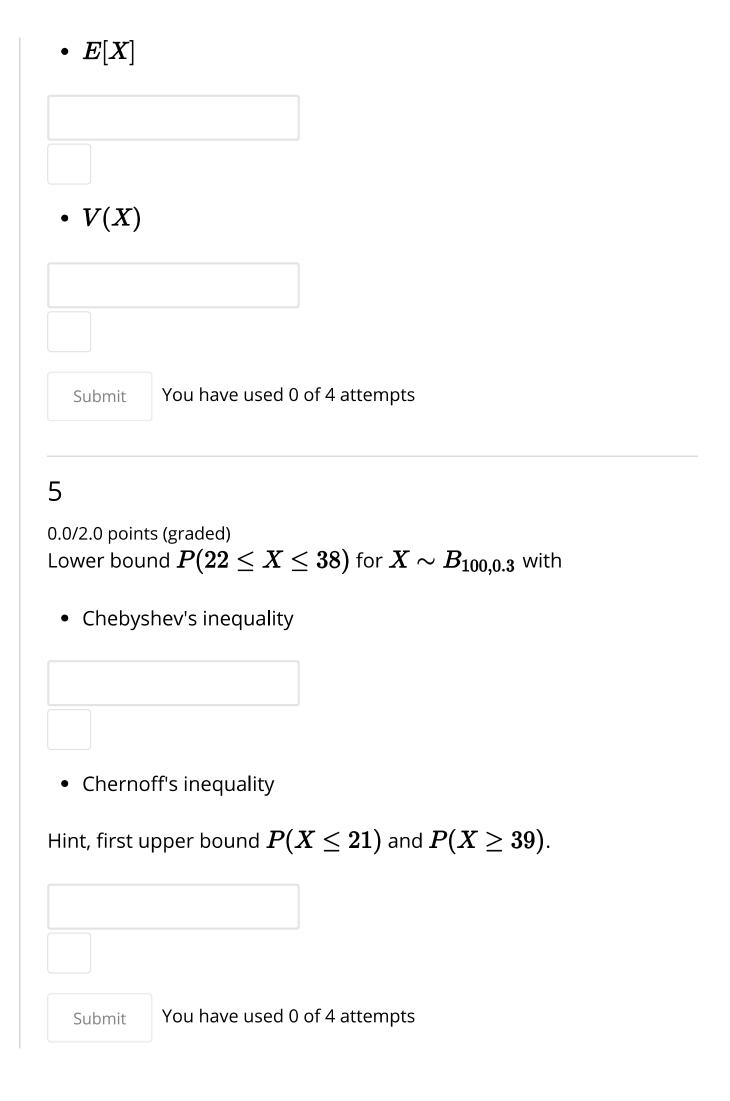
You have used 0 of 4 attempts

2

0.0/1.0 point (graded)

$E[X]=2$ and $E[X^2]=6$.
Submit You have used 0 of 4 attempts
3
0.0/1.0 point (graded) The height of a person is a random variable with variance ≤ 5 inches 2 . According to Mr. Chebyshev, how many people do we need to sample to ensure that the sample mean is at most 1 inch away from the distribution mean with probability $\geq 95\%$?
Submit You have used 0 of 4 attempts
4
0.0/2.0 points (graded) If $oldsymbol{X}$ is a non-negative continuous random variable with moment generating function
$M(t) = \frac{1}{(1-2t)^2}, t < \frac{1}{2}$

Calculate



0.0/1.0 point (graded)

Let U,V, and W have pdf's $f_U(x),f_V(x)$, and $0.3f_U(x)+0.7f_V(x)$. What is the moment generating function of W?

- $\circ M_U(0.3t) + M_V(0.7t)$
- $0.3M_U(t) + 0.7M_V(t)$
- $^{\circ}~M_U(t)^{0.3} + M_V(t)^{0.7}$
- $^{\circ}~M_U(t)^{0.3}M_V(t)^{0.7}$

Submit

You have used 0 of 2 attempts