How many ways are there to arrange the following letters $HHHHTTT$? Assume that H 's are indistinguishable and T 's are indistinguishable. Question 2 4 pts Let X be a random variable that takes values 6 , 11 , and 14 with $P(X=11)=0.5$ and $P(X=14)=0.2$. Find $E[X]$.	Question 1	4 pts
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Question 3	4 r	ots
Question	7	100

A fair die is rolled 120 times. Find the expected number of times we will observe outcome "6."

Hint: If $X \sim \operatorname{Binomial}(n,p)$ with some $n \in \{1,2,3,\ldots\}$ and $p \in [0,1]$, then E[X] = np.

Question 4 4 pts

Let \boldsymbol{X} be a continuous random variable with the following probability density function:

$$f_{X}\left(x
ight)=rac{1}{\sqrt{2\pi}}e^{-rac{x^{2}}{2}}$$
 for all $x\in\mathbb{R}.$

Find E[X].

Question 5 4 pts

Let X be a continuous random variable with the following probability density function:

$$f_{X}\left(x
ight) =\left\{ egin{aligned} e^{-x}, & ext{if }x\geq 0,\ 0, & ext{if }x<0. \end{aligned}
ight.$$

Find E[X].