
Phys 343 Assignment (5)

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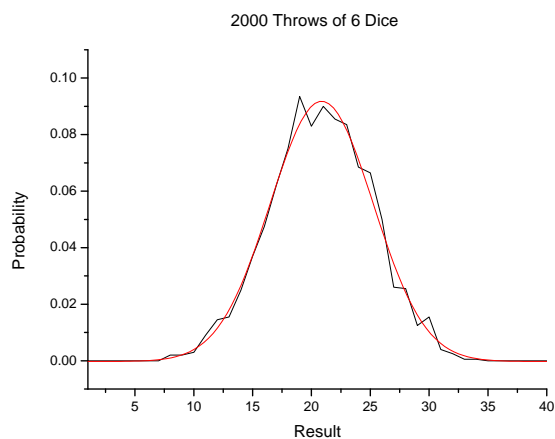
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PROBLEM

DESCRIPTION

Six dice having six sides were thrown 2000 times to produce the data fitted in the curve below. The curve is between the total (sum) number read-out from the 6 dice X VS the normalised probability $P(X)$. The curve (Red) is the fitted 'Gaussian 'curve, and the Black one is the plotted data (from an actual simulated experiment). The red curve is given by the equation :

$$P(X) = \frac{1}{2\pi(10.308)} e^{-\frac{(X-20.87)^2}{212.51}}$$



REQUESTS

1. Find the Mean result and Most probable result You may estimate them from the graph, or use the function given.
2. How many Macrostates of this system ? Ignore, from now on the number of throws. Focus only on the probability distribution obtained.
3. What are the Microstates, and how many of them ?
4. Find the statistical weight of the system Ω
5. Write the entropy function, then maximise it What is the Macrostate that maximises the entropy ? What do you conclude ?

End of assignment... Best of Luck !