

Quiz Five

Lecture: 8:30 **SI:** Alex Ashley
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 Jason Matt

No notes. Calculators are allowed.

Write clearly and explain your reasoning.

1 (4 points) The Cleveland Cavaliers' old starting line-up for last Tuesday's game featured players age 23, 23, 26, 29, and 32. Find both the mean and median age of this line-up.

2 (4 points) Find the standard deviation (assuming population data) of the ages of the Cavaliers' line-up from problem 1.

3 (4 points) A candy company W&W's sells small candies by the bag (each imprinted with a small W). An audit of the production process shows that there are an average of $\mu = 540$ W's in each medium-sized bag, with a variance of about $\sigma^2 = 20$. Use Chebychev's theorem to estimate the probability that a medium-sized bag of candies will have between 510 and 570 (inclusive) W's.

4 (4 points) Choose k , if possible, so that $f(x) = \frac{k}{x^3}$ is a probability density function on the interval $[1, 2]$. If this is not possible, explain why.

5 (4 points) A number x is selected at random from the interval $[0, 4]$. The probability density function for x is

$$f(x) = \frac{1}{2} - \frac{1}{8}x \quad \text{for } 0 \leq x \leq 4.$$

Find the probability that a number is selected in the subinterval $[0, 2]$.