

**Quiz Five**

**Lecture:**  8:30      **SI:**  Alex       Becca  
 9:30       Ashley       Jason  
 Avni       Matt

**No notes. Calculators are allowed.**

Write clearly and explain your reasoning.

1 (4 points) The Cleveland Cavaliers' new starting line-up for Sunday's game featured players age 23, 24, 29, 32, and 33. 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  $\mu = 450$  W's in each medium-sized bag, with a variance of about  $\sigma^2 = 30$ . Use Chebychev's theorem to estimate the probability that a medium-sized bag of candies will have between 430 and 470 (inclusive) W's.

- 4 (4 points) Choose  $k$ , if possible, so that  $f(x) = \frac{k}{x^4}$  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

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

Find the probability that a number is selected in the subinterval  $[3, 4]$ .