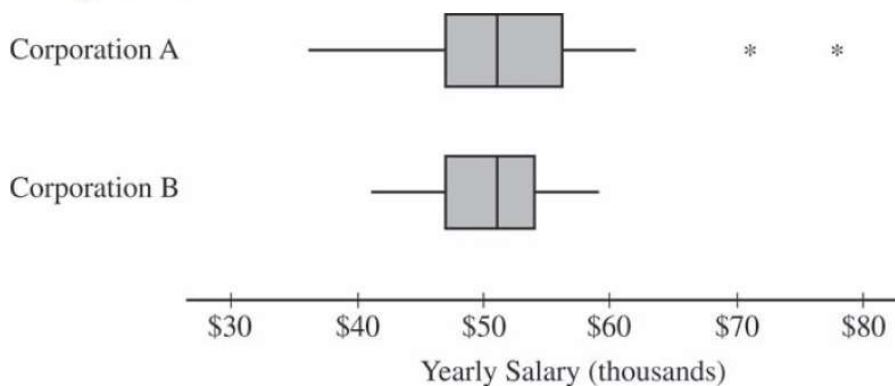


**AP Statistics**

**FRQ Packet #4**

**Due: Wednesday, 2/13**

Two large corporations, A and B, hire many new college graduates as accountants at entry-level positions. In 2009 the starting salary for an entry-level accountant position was \$36,000 a year at both corporations. At each corporation, data were collected from 30 employees who were hired in 2009 as entry-level accountants and were still employed at the corporation five years later. The yearly salaries of the 60 employees in 2014 are summarized in the boxplots below.



- (a) Write a few sentences comparing the distributions of the yearly salaries at the two corporations.
- (b) Suppose both corporations offered you a job for \$36,000 a year as an entry-level accountant.
  - (i) Based on the boxplots, give one reason why you might choose to accept the job at corporation A.
  - (ii) Based on the boxplots, give one reason why you might choose to accept the job at corporation B.

A shopping mall has three automated teller machines (ATMs). Because the machines receive heavy use, they sometimes stop working and need to be repaired. Let the random variable  $X$  represent the number of ATMs that are working when the mall opens on a randomly selected day. The table shows the probability distribution of  $X$ .

|  |      |      |      |      |
|--|------|------|------|------|
| Number of ATMs working when the mall opens | 0    | 1    | 2    | 3    |
| Probability                                | 0.15 | 0.21 | 0.40 | 0.24 |

- (a) What is the probability that at least one ATM is working when the mall opens?
- (b) What is the expected value of the number of ATMs that are working when the mall opens?
- (c) What is the probability that all three ATMs are working when the mall opens, given that at least one ATM is working?
- (d) Given that at least one ATM is working when the mall opens, would the expected value of the number of ATMs that are working be less than, equal to, or greater than the expected value from part (b) ? Explain.