QUIZ 3

Based on a recent report, the combined SAT scores for Duke students have a lower quartile of 1300 and an upper quartile of 1490. Assume that the SAT scores follow a Bell-shaped distribution. A copy of Table 8.1 is on the back of the quiz.

1. What is the average SAT score at Duke?

   $(1300 + 1490)/2 = 1395$ because of symmetry in the distribution.

2. What is the standard deviation of SAT scores?

   The upper quartile is the 75th percentile, so the Z value is 0.67.

   So $0.67 = (1490 - 1395)/\ SD$, which solving for SD gives that the SD is 141.79.

3. If the mean and standard deviation of SAT scores based on all students that take the test is 1000 and 175, what percentage of students (of the entire population) score above the upper quartile of SAT scores at Duke? *If you cannot find the exact answer, specify a bound or range (ie between 2 and 2.5 percent).*

   need to find the standardized score:

   $Z = (1490 - 1000)/175 = 2.8$

   Thus a Duke students score of 1490 corresponds to the 99.75th percentile. This means that 0.25 % score above.