The last four questions use information from this statement, but each question is separate (i.e. you can get the first one wrong and it won't affect the others): The Medical College Admissions Test is constructed to be normally distributed with a mean of 8 and a standard deviation of 2. Approximately 25,000 people take the test every year. SHOW YOUR WORK FOR FULL CREDIT.

6.   Stanford Medical School only considers applicants with a ~~mean~~ score of 11.3 or greater. How many of the test takers qualify for Stanford?   (6 points)

$\bar{x} = 8$ $SD = 2$
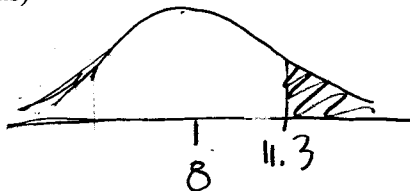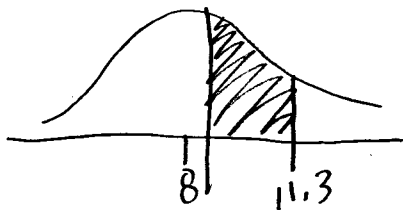
$\frac{11.3-8}{2} = 1.65$

$Z(1.65) = 90.11$

$\frac{100-90.11}{2} = 4.945\%$

$.04945 \times 25,000 = \boxed{1236 \text{ test takers}}$

7.   You decided to take the MCAT and got an 11.3. Your cousin, who went to USC, also took the MCAT got an 8.3. What percentage of test takers have scores between yours and your cousin's? (6 points)

$\frac{11.3-8}{2} = 1.65$

$Z(1.65) = 90.11$

$\frac{90.11}{2} = 45.055$

$\frac{8.3-8}{2} = .15$

$Z(.15) = 11.92$

$\frac{11.92}{2} = 5.96$

$45.055 - 5.96 = \boxed{39.095\%}$

39.1%

39%

8. After thinking it over, you decide not to apply to Medical School, but apply to Law School instead. And to your surprise, the UCLA Law School is willing to consider applicants with a valid MCAT score – with the following condition: All applicants must add 5 to their MCAT Score first and then multiply that score by 10. So for example, you got a 11.3, your new score is 163.
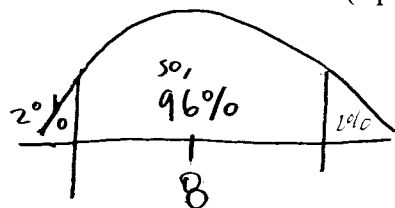
If you apply UCLA rules to ALL the MCAT scores, what are the new mean, median, and standard deviation? Please show your work for full credit (6 points)

New Mean: $(8 + 5)10 = \boxed{130}$

New Median: → symmetrical so $\bar{x} = M$
$\boxed{130}$

New SD: $2 \times 10 = \boxed{20}$

9. The lowest 2% of test takers enroll at Dr. Nick Riviera's School of Medicine. At and below what score is the lowest 2%? (6 points)

Medical school, not law school, so original $\bar{x}$ and SD count.

so,
96%
2%
2%
8

$SD = 2$
$100 - 2(2) = 96\%$
$z(96\%) = 2.05$
but the negative so -2.05

$8 + 2(-2.05) = \boxed{3.9}$