Solutions to Homework set 2:  

Chapter 5:

3. (a) In 1967, the percent scoring over 700 was about 8%. (700 works out to be 1.43 SDs above average.)  
(b) In 1994, the percent scoring over 700 was about 3%. (700 in standard units is 1.83.)

6. No. (No score is more than 1 SD above average.)

Special review exercises from pg 105:

4. (a) About 87% (area between $-1.5$ and $1.5$ on the normal curve).

(b) 560. First estimate the number of students at the university by noting that if 68% is about 1000, then there must be $1000/0.68 \approx 1470$ total students. Then figure out what is 500-600 in standard units ($\pm 0.5$). The area between these is about 38%, and 38% of 1470 is about 560.

11. About 67.5 inches. The average is halfway between the 25th and 75th percentiles, and must be 64 inches. Use the fact that the 75th percentile is 0.67 standard units, and solve for the SD. Then compute the 90th percentile the usual way.

Chapter 8:

5. (i) 0.60 (ii) 0.30 (iii) 0.95

7. Starting with the top left, and going row by row, left to right: 0.62, $-1.00$, $-0.85$, 0.97, 0.06, $-0.38$

11. $r = -1$.

Chapter 9:

4. Somewhat higher - put together, the data become more linear.

10. (a) True. Good students are more likely to take the test, and the more students that take the test, the lower will be their average skill.

(b) False. Might have been a higher percentage of students taking the test.