*Note: During the examination, please do not attempt to **cheat**. Suspected cheating will result in a **ZERO** on your exam. As cheating in examination is a disciplinary action, you will be subject to disciplinary hearing.*

Question 1 (30 points):

The following data represents the length of time, in hours to recovery for patients randomly treated with Drug Z.

60	40	50	70
48	53	50	42
44	40	52	46

Assuming that the measurements represent a random sample from a normal population with standard deviation of 10 hours;

a. **(10 pts)** Compute sample mean and sample variance (By hand calculation is required. Show your computations.)
b. **(10 pts)** Construct a 99% confidence interval for the mean recovery time for this drug. Comment on your finding.
c. **(10 pts)** How large a sample is needed if we wish to be 96% confident that our sample mean will be within 5 hours of the true mean? Moreover, how large a sample is needed if we wish to be 98% confident that our sample mean will be within 5 hours of the true mean? Comment on the relationship between sample size and level of confidence according to your results.