

QUIZ #7

Please, write legibly and show your work. If you use R, you need to report the command you are using. Please, round your solution to 3 decimal digits.

(1)[6 Pts] Let  $\bar{X}$  be the mean of a random sample of size  $n = 48$  from the uniform distribution in the interval  $(2, 8)$ . Approximate the probability  $P(4.9 < \bar{X} < 5.5)$  using the Central Limit Theorem. You must show how you set up the probability calculation.

(2)[4 Pts] Let a population be normally distributed with mean  $\mu$  and standard deviation  $\sigma = 5$ . Find the minimal sample size  $n$  such that we are 99 percent confident that the estimate of  $\bar{x}$  is within  $\pm 1.2$  unit of the true mean  $\mu$ . You must show the formula you apply to find your numerical solution.